The Builder.

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New Architecture at Cambridge.

READERS of the daily papers may have been struck with the attention recently given to the description of new buildings at Cambridge. This unwonted attention does not, however, arise from any interest in the architectural aspect of Cambridge—half the colleges on the banks of the Cam might be rebuilt and the daily papers would never trouble their heads about it—but on account of the fact that the King made a special visit to Cambridge to open them or declare them open. In England loyalty is a much stronger force than art. Of the three new buildings in the neighbourhood of Downing-street—for in an architectural sense there are only three, the Sedgwick Museum and the Law Library forming one block—two have been already illustrated and described in our columns; but a survey of their effect on the ground may be appropriate at this juncture, when they are outwardly complete, or nearly so.

Downing-street is a narrow street turning westward out of the main artery of Cambridge, just opposite the heavy classic front of Emmanuel College; but south of it is a large open piece of park, the property of Downing College, which occupies the south end of this space, and at the north end the University has purchased from the college sufficient land to form a spacious site for the Botanical School, and for the building in which are housed both the Sedgwick Museum and the "Squire" Law Library and the Law School, and to which is to be added ultimately an archæological museum as a return wing. On the north side of Downing-street, and nearly opposite, is the new Medical School with its pendant, the Humphrey Museum.

The long range of buildings containing the Law Library and the Geological Museum, of which Mr. T. G. Jackson is the architect, extend along the south side of Downing-street, with a return wing, at a slightly obtuse angle, along Downing-lane on the east of the site. The Law Library forms the main feature in the Downing-street front, rising higher than the rest, and emphasised by the five lofty windows of the library on the upper floor. It is not central in the design, nor does the architectural treatment adopted require that it should be, as the design of the front on each side of it is not symmetrical; the whole is freely treated in a manner arising out of the requirements of space of the different departments. The Sedgwick Museum occupies the larger eastern portion of the façade, and turns round the corner along Downing-lane. The Law School, and the beginning of what will be the Archæological Museum wing, occupy the smaller portion on the west side. Beneath the three central windows of the Law Library is a triple arcaded and vaulted gateway with coupled columns, leading into the large open space at the back, at the other side of which, but not centralised, is the separate building, by Mr. W. C. Marshall, which forms the Botanical School and Museum. The Downing-street front of Mr. Jackson's buildings runs to about 440 ft. in length, so that it will be seen that this is an architectural scheme on a pretty large scale. The main entrance to the Geological Museum is not from the street but from the court-yard; the door, which is on the first-floor level, is reached by a double exterior flight of stone stairs treated in a decorative manner, the balustrades terminating at the foot in sculptured bisons on one side, and sculptured bears on the other. We do not exactly see the relation of these animals to a geological museum, inasmuch as they are not extinct (though the bison is likely to be so before long), and, therefore, do not come under that study of palæontology which is so closely connected with geology; but we are truly glad to find any architect having the courage to revive that fine feature, the exterior staircase, so common in the Renaissance period, and which is supposed to be so much at variance with our ideas of comfort in the present day. It is in a University city, however, that we may expect to find, if anywhere, the spirit that will prefer a little bit of effect like this to the considerations of mere every-day and prosaic convenience. It was to gain this, probably, that the principal

entrance was made on the courtyard side; there would not have been space for the staircases on the street side. When the west return wing is complete, we gather that there will be a similar exterior staircase entrance to the Archæological Museum. The steps and entrance to the Geological Museum, and the portions of the building adjacent, were illustrated in our issue of May 9, 1903.

The erection of new buildings on a large scale in an ancient University town is an architectural event of some importance, and one which inevitably suggests a reference to the continual conflict, in modern architecture, between the claims of tradition and of originality, and the difficulty of reconciling them. If ever there was an architectural situation in which tradition might be said to have the higher claim, it is in the case of an ancient University. In the very air of such a place tradition is strong; many of its usages, its regulations, even to some extent its habits of thought (to too great an extent, some may think), are governed by respect for tradition. And the old Renaissance buildings of Cambridge have about them a kind of air of the best traditions of a school of architecture which, in a peculiar degree, combines refinement of detail with general dignity of aspect. It is easy to see that this element in the architecture of the past in Cambridge has not been out of the mind of the architects of the new buildings to the south of Downing-street. Mr. Jackson has given ample evidence already, in his Oxford buildings, that such considerations are prominent and important to him; *genius loci*, in spirit and intent, is writ large on many of his buildings, not excluding this latest University building at Cambridge. There have been times and occasions when the architectural traditions of Oxford and Cambridge have received no such recognition, and when buildings have been erected for the uses of the University which seemed rather to breathe the spirit of the prosperous manufacturing town without a past. Even the great mass of the Johnian Chapel at Cambridge, correct revived Gothic by an "eminent hand," has the air of an interloper on the scene, with the look of a Colonial cathedral rather than a college chapel; and there have been worse developments than that. In the present new buildings to the south of Downing-street there is nothing to suggest the trail of the manufacturing town; the details are restrained and unobtrusive, and suggest the influence of the late Gothic and the free Renaissance which are the prevailing elements in Cambridge architecture, without direct imitation. Yet, when comparing them with the older buildings in the neighbourhood, one cannot but doubt whether tradition might not have been a little more completely kept up with advantage. Both the geological buildings and the botanical school, while they show the influence of the Cambridge atmosphere, seem to want the dignity and unity of effect which belongs to the old buildings. The latter look better in reality than they do in drawings; the new ones strike us as looking better in drawings than they do in reality. The employment of brick for the general mass of the walls is, of course, much to their disadvantage in comparison with many of the old buildings; but what strikes one also is that, with many interesting points, there is a want of that coherence and wholeness of design and character which belongs to old architecture of the same class; it is not, to borrow a literary criticism, "sufficiently inevitable." The rather staring red-brick arches in the ground floor next the court, for instance, disturb the effect; the heavy round moulding on the set-offs of the interior buttresses of the law library clashes with other details and looks coarse; the cupola over the tower on the courtyard side does not seem to fit well into the composition. The architecture has the look of having been designed in parts rather than as a whole. The treatment of the large windows of the library on the inner side, with alternate straight and curved pediments, seems more pleasing than the canted bays on the street side, with no particular finish at top; another little point in which we think tradition has the best of it. Mr. Marshall's botanical building cannot be accused of being designed piecemeal; it presents a centre feature with a large segmental gable of Georgian fashion, and wings pierced regularly with two tiers of large mullioned windows. Nothing could be simpler; but it looks rather bald, and one feels here again that the ancient buildings have the advantage in dignity. The windows do their duty; the interior is admirably lighted; but the external appearance is, for a University building, rather commonplace.

The interior of the geological museum is well arranged as to lighting, with the good old common-sense arrangement of cases placed at right angles to the wall between the windows, so as to give each case a good side light. Onslow Ford's statue of Sedgwick is admirably characteristic, but it is not effectively placed; it should have been seen down a vista, whereas it fronts only to the opposite side of one of the galleries.

Mr. Prior's medical school on the north side of Downing-street rather clashes with Mr. Jackson's building; it belongs to so different a type of architecture. The object has evidently been to give to the exterior the plain and almost stern aspect proper to a building erected for purely technical study. This severity of style is combined with a certain degree of architectural character, and, though the treatment has less of tradition than the opposite building, it has the merit of unity of design. The carving in the panels under the pediments of the bay windows is rather coarse and out of scale with the rest. We doubt whether the freak of planting on the Humphrey museum building at an oblique angle to the rest produces any effect to compensate for the inconvenience in planning occasioned, nor does the heavy and severe style of architecture employed lend itself very well to this picturesque irregularity. The Humphrey museum is a nice interior, but contains another freak which would annoy us every time we had to enter the room. Two of the dark bands formed in the floor pavement coincide with the position of the columns; the next one is a foot out of centre with the columns. No Renaissance architect would ever have done that.

THE ARA PACIS AUGUSTÆ.

APART from the excavations of the Forum, the topic of the hour in archæological circles is the Ara Pacis Augustæ. It formed the subject of an admirable lecture recently delivered by Mr. H. Stuart Jones, Director of the British School at Rome, to the British and American Archæological Society, and an abstract of his remarks may be of some interest.

The erection of the altar was decided upon by the Senate in 13 B.C. on the occasion of Augustus's return to Rome, after the restoration of peace and order in the western half of the empire, and it was completed, or, at any rate, dedicated, on July 4 in 9 B.C.

The altar itself was surrounded by a wall of blocks of white marble about 2½ ft. in thickness, which reached a height of about 13 ft. This enclosure measured some 34 ft. by 38 ft., and had two* openings, each 12 ft. in width, in the longer sides, one of which (the east) opened upon the Via Flaminia (the modern Corso), while the western opening, which appears to have been the principal one, led to the Campus Martius, and was approached by a flight of five low steps, with 5 in. rise and 9 in. tread, intended, no doubt, for the animals to be led up to sacrifice. It is with the remains of this enclosure wall that the main interest of the monument is connected, for the blocks of which it is composed are carved upon both sides and bear reliefs which are probably the finest effort of the art of the Augustan period. On the outside above is a frieze with figures, which is the most important part of all, while the lower half of the wall is occupied by extremely fine decorative foliage; on the inside the upper half of the wall has a frieze of festoons of fruit and flowers suspended from ox skulls, while the lower half seems intended to represent an enclosure of planks—perhaps the temporary fence that was built round the altar at the time when the first sacrifice was offered at it.

The outer frieze of the upper half of the wall is, as has been said, by far the most interesting. Upon the north and south sides are two processions, going towards the main (western) entrance to the enclosure.

In the northern procession we recognise the personification of the magistrates, senate, and people of Rome; in the southern, Augustus and his family and the chief dignitaries of the state.

The spaces available upon each side of the doors on the east and west walls are, naturally, smaller than those provided by the unbroken north and south walls. On each side of the principal entrance were reliefs, one representing Tellus, the Earth, with personified representations of the breezes on each side of her, the other a sacrifice of a sow to the deity. On the east side the reliefs representing the sacrifice of oxen are probably to be placed.

The history of the monument has been a curious one. Portions of its reliefs were found on three separate occasions in the XVIth century and have been much dispersed, so that they must be sought in

* Until the recent excavations it had been supposed that there was but one doorway on the east.

the Louvre, at Vienna, at Florence, in the Villa Medici at Rome, and in the Vatican. Another group of fragments was brought to light in 1859, and remained in the palace which is built over the site of the altar, the Palazzo Fiano, until 1898, when the Italian Government bought them and placed them in the Museo delle Terme.

But it was not until 1879 that a German archæologist, Professor von Duhn, succeeded in determining that all these scattered fragments belonged to one and the same monument, with the help of drawings of the reliefs which had been made before their dispersal* (the most important of which drawings are in the British Museum, to which they came only two or three years ago after the death of Sir Augustus Wollaston Franks). Since that date they have been the subject of study by Professor Petersen, the head of the German Archæological Institute of Rome, who published in 1902 a detailed monograph on the subject.† The appearance of this work, with its appeal for a further and final excavation of the remains, has impelled the Italian Government to undertake the task of bringing to light the rest of the reliefs and of investigating more carefully than had been done hitherto the site itself. The work began last summer, and has already led to the discovery of several important fragments, and, more than all, of the base of the wall itself, at the level of the doorways, from which archæologists can at last derive a secure basis for reconstruction. Professor Petersen's theoretical arrangement of the reliefs and reconstruction of the monument, though it does him the greatest credit as an archæologist, has had perforce to be modified in certain points (*cf.* his article in *Römische Mitteilungen*, 1903, p. 164). The core of the altar itself has also been found.

The work is carried on under considerable difficulties, as the Roman level of the Campus Martius is now some 5 ft. below the modern water level; but it is to be hoped that the task of extracting what remains will be carried through, expensive though it will undoubtedly be, owing to the necessity of keeping pumps constantly going and of carefully underpinning the foundations of the palace above. If those fragments of the reliefs which are in other hands can be secured by the Italian Government, it will be possible, after the present excavations are completed, to reconstruct the whole monument (not on the spot, but in some more suitable site above the modern ground level) with a fair degree of certainty; and friends of Italy would see a coincidence of good omen for the future in the re-erection in the capital of united Italy of the Altar of Peace erected by the first Roman Emperor in the capital of his dominions.

THOMAS ASHBY, JUN.

FORM OF CONTRACT FOR SUB-CONTRACTORS.—We understand that the Institute of Builders recently took in hand the preparation of a form of contract for the use of sub-contractors, and that they have produced a document which will be of considerable service to the trade.

* *Miscellanea Capitolina* (Rome 1879), p. 11; *Annali dell' Istituto*, 1881, p. 302.

† *Ara Pacis Augustæ* (Sonderschriften des Oesterr. Arch. Inst. in Wien Bd. II. 1902).

NOTES.

Concrete-Steel Design. NOW THAT concrete-steel construction is beginning to be extensively adopted in this country, it may be useful to refer to one or two points which should always receive careful attention by designers. In the first place it is very important to remember that, as a general rule, the manufacture of the material as a whole is concurrent with the erection of the structure; consequently, no opportunity is afforded of testing the material as there would be in the case of a bridge built in the contractor's yard. Probably the best means of insuring failure would be to entrust excessive responsibility to a building contractor or some other person who is not properly qualified to settle the proportions and distribution of the reinforcement, or to decide the most suitable method of mixing and applying the concrete. In every case the concrete used in concrete-steel construction should be of considerably better quality than that employed in ordinary masonry. Its constituents should be of better quality, and greater care should be taken in mixing. Particular care should also be taken to thoroughly enclose the reinforcement, so as to make an absolutely continuous joint. It is not always necessary that the concrete should be rich, but the greatest care must be taken to see that all voids are properly filled with cement so as to secure the existence of a solid and homogeneous mass in which the steel bars may be firmly held without risk of sliding. All architects who propose to avail themselves of the advantages of this new material should pay particular attention not only to the design of all details, but also to the supervision of the building contractors, who in most cases are unaccustomed to special work of the kind.

Electricity in Mines. THE report recently issued by a departmental committee of the Home Office on the use of electricity in mines is a very valuable one. The committee have evidently closely studied American and Continental practice, and their criticism is always well informed. In America a direct-current system of supply is generally adopted for providing the power for the coal-cutting devices and for lighting the mines. Electric traction is also widely used, and this perhaps explains the preference shown for direct current. On the Continent alternating-current polyphase systems are generally used, and as polyphase motors can operate without commutators or slip-rings they can be used with absolute safety in fiery mines. The drawback to their use is that the various tools employed generally work on a very intermittent load, and therefore the motors which drive them are being continually started and stopped. Under these conditions the efficiency of polyphase motors is much less than that of direct-current motors. When there is any danger of gas electric locomotives cannot be used, the sparks from the trolley-wheel or the rails being obviously inadmissible. It seems to us that this is a case where some of the several alternating-current magnetic systems of traction could be applied with advantage. The report dwells on the arduous nature of miners' labour. "They have to lie for hours under masses of coal which, if they fell, would crush or severely wound them." A large proportion of the yearly roll of mine accidents is due to this cause. When an electric coal-cutter is used the chances are that only the machine is damaged when a fall occurs. Every application of electricity to diminish the severity of the miners' daily toil is welcome.

American Engineering Schools. IN view of the proposals made this year to found a large central technical institute in London, the paper on "Transatlantic Engineering Schools and Engineering" recently read by Dr. Mullineux Walmsley to the Institution of Electrical Engineers is of general interest. The paper gives the result of a tour of inspection of the schools and colleges in the United States and Canada. It also describes interviews with many manufacturers and professional men, and the collection of statistics concerning the endowments of teaching and research in connexion with engineering are valuable The attitude of American manufacturers towards technical colleges seems quite different from that of the majority of English manufacturers. This is probably due to the practice of taking premium pupils in this country. In America many of the best firms will only give appointments on their technical staff to men who are college graduates or who have had a regular four years' training at a technical institute. The General Electric Company, for example, to take a case from amongst many others, take into their testing department alone nearly 300 college graduates every year. Every man employed gets a minimum wage of thirty-five shillings a week from the start, and if the man proves competent, his salary rises rapidly. We do not wonder that ambitious Englishmen and Germans often go to America for their technical training. Many of the professors at the technical colleges are allowed to practise as consulting engineers. This keeps them in touch with the latest developments of industrial progress. On the other hand, much of the routine work of teaching is left to underpaid assistants, just as it is in many colleges in this country. In our opinion, elaborate apparatus and costly tools are not the test of the usefulness of a college. The real test is whether the assistant teachers are competent or not. Dr. Walmsley was much struck by the large amount of post graduate research that is done in the United States. We believe, however, that this kind of research would be best done in a central technical institute for doing commercial testing on a large scale. This would keep the research graduates in touch with the actual requirements of commerce and would prevent a great deal of that laborious research into matters of no theoretical or practical importance often made by graduates at the older universities in this country.

Sanitation in Rural Districts. THE recent deputation of the Rural Housing and Sanitary Association to the President of the Local Government Board emphasises what has been constantly stated in these pages that in

regard to rural sanitation it is the men and not the measures which need reform. As Mr. Long said, pressure should be put on those responsible for the administration of the law, because he believed that the existing laws were to some extent sufficient to meet the evils of which complaint was made. But if the local authority is apathetic, the most energetic official is handicapped, since it is only by having the force of the local authority behind him that a sanitary inspector can compel his recommendations to be carried through. The more therefore that those who take a true interest in local affairs obtain representation on district and other councils the more likely are sanitary reforms to be undertaken and the law executed. Mere philanthropy, grumbling, or expostulation is little use; action on local bodies is the only real remedy for existing shortcomings.

Drainage of Low-lying Buildings.

AN interesting decision on a little-known section of the London Building Act 1894 was given by the Divisional Court in the case of Ellis *v.* London County Council (current Law Reports). Section 122 provides that it shall not be lawful to erect any building to be used as a dwelling-house upon land of which the surface is below the level of Trinity high-water mark and which is so situate as not to admit of being drained by gravitation into an existing sewer of the Council, except with permission of the Council. The appellant, who had been convicted by the magistrate, had erected his houses at Charlton on land situated about 7 ft. below Trinity high-water mark. Provision was made for these houses to drain into a sewer which in its turn was led into a main outfall sewer. There was a fall of 5 ft. 6 in. from the houses to the sewer, but at its junction with the outfall sewer an automatic flap was fixed which, when the outfall sewer was flooded, prevented the flow of sewage from the other sewer. The Divisional Court held that the conviction was wrong, since in fact there was a sufficient fall into the first sewer to admit of the houses being drained by gravitation, and that the artificial closing of the outfall sewer, by its being put to a particular use by the Council, was not within the operation of the section.

Tramway and Highway Authorities.

THE London United Tramways Company has abandoned nearly all its extensions, including that from Hounslow to Maidenhead *vid* Slough, on the ground that the demands of the local authorities are unreasonable. That tramway companies and local authorities are unlikely to agree on these points is certain. It is impossible to say whether the local authority or the tramway company is right as regards the amount to be spent. Thus, between Brentford and Ealing the Company was prepared to spend 13,536*l.* in street-widening, but the Urban Council required further work at a further cost of 7,000*l.* There seems, however, a good deal to be said for the demands of the local authorities when we hear of width of highways. The Bucks County Council required a road to be made, or, rather, the existing road to be widened, so as to be 80 ft. in width. In other words, there were to be two tracks, one for the tramway, the other for vehicles and foot-passengers. The width does not seem excessive, for in the country these so-called tramways are really light railways, and there should be ample room for all classes of traffic. A tramway company naturally likes to take as little extra ground as possible, but highway authorities are bound to protect ratepayers and to look to the traffic of the future as well as of the present.

A Canadian Irrigation Scheme.

AN enterprise about to be commenced in the province of Alberta, Canada, is one of the most important irrigation works hitherto undertaken, and its effect will be to add a tract of some 3,000,000 acres to the cultivable land of the Dominion. Irrigation in Alberta is by no means an experiment, for there are already 400 miles of irrigation canals and waterways. Hence there is every reason for believing that the project will be thoroughly successful. Water will be derived from the Bow River, rising in the Rocky Mountains, and the first work to be undertaken is the construction of a main canal twenty miles long and some eighty-five miles of distributing canals, sufficient altogether to irrigate an area of 300,000 acres and to render available for grazing and dairy farms an adjoining area of 400,000 acres. The remaining part of the work will include the extension of the main canal, the construction of storage reservoirs, and the construction of a second large canal for use as a feeder to the irrigation system. By these means 1,500,000 acres will be made suitable for cultivation, and an equal acreage for grazing and dairy purposes. As the result of preliminary surveys, it is estimated that about one-half of the entire area can be irrigated at a cost of less than 1,000,000*l.* The land in question is traversed by the main line of the Canadian Pacific Railway Company, by whom the works will be carried out, and there can be no doubt that in a few years it will become one of the most productive and prosperous regions in Canada.

The Engineering Standards Committee.

WE publish elsewhere in this issue a *résumé* of the work actually accomplished to the present date by the Engineering Standards Committee, but this summary gives a very inadequate idea of the large amount of preparatory work performed. In addition to the financial support of the leading engineering institutions, railway companies, and engineering firms, the organisation is indebted to the generosity of His Majesty's Government. The amount of the Government grant for 1904-5 has been made dependent on the amounts contributed by the industries affected, and it is very desirable that this condition should be widely known, so that the valuable work being done by the Committee may not be hindered or curtailed for want of funds.

Royal Academy Lectures.

DR. MURRAY, we regret to say, was too ill to be present to give his concluding lecture on the Niobide group at Florence, which was read for him by Mr. Arthur Smith. He commenced by reference to the description of Niobe in Homer, and the legend of her being seen as a stone figure weeping on a lonely mountain—the ideal referred to by Byron where he calls Rome "The Niobe of Nations"; but the Niobe of the artists was at the moment of the catastrophe, when she and her children were slain by the arrows of Apollo and Artemis. In sculptural treatment of such a subject either the two deities must be the leading figures or they must be absent and Niobe the central figure. From about 400 B.C. (the date of Skopas) the latter was the adopted treatment, and it had been supposed that the well-known but incomplete group now at Florence was, or represented, the work of Skopas. Pliny doubts whether it was Skopas or Praxiteles who executed a Niobe group; Dr. Murray believes that it was Skopas, but it did not follow that the group at Florence was the original work. The originals were brought to Rome as spoils of war by a Roman Legate in the first century. The Florence group was discovered at Rome in 1583, near the Lateran, at the opposite side of the city from where the originals are said to have been placed; the figures were set up in the Villa Medici garden, and in 1775 removed to Florence. There were various known ancient copies of single figures of the group; one of the right-hand group found at Soissons; one of one of the daughters in the Vatican, and superior in style to the figure at Florence. The existence of a number of copies reduces the chance that any one of them is the original; and, as Dr. Murray showed later in the lecture, the workmanship shows, in the drapery especially, the comparative commonplaces of technique which are almost certain indications of Græco-Roman work. Yet it no doubt represented a Greek original, and there was much in favour of thinking that original to have been the work of Skopas. The heads bore the same characteristics as an undoubted head by Skopas (of which a cast was exhibited)—great depth in the hollow of the eyes and prominent definition of the eyeball. Another point was the lengthiness of proportion of the figures, those of the sons especially. Now, it was known that Skopas executed part of the sculptures of the Mausoleum, and among the Mausoleum reliefs were figures with the same quality of lengthy proportion; also the peculiarity of one of the figures having its back turned to the spectator was found in five instances in the Mausoleum reliefs. They could feel sure it was not by Praxiteles, for they had the Hermes to compare it with; but there seemed a good deal of reason to accept it as a copy from Skopas. In regard to the supposed scene, the old legend was that the sons were slaughtered by Apollo on the hill side, and the daughters subsequently at home by Diana; but the artist must have the action combined, and the indications of rocky ground showed that the whole scene had been imagined by the sculptor as in the open air. The varied heights occupied by the figures, with the existence of one figure lying down (probably balanced by a similar one at the opposite side), left little doubt that the group had filled a pediment, with Niobe and the child as the central group. The arrangement of the other figures was conjectural; but it could not be supposed that any sculptor would arrange all the daughters on one

side of the centre and all the sons on the other, and the arrangement now made seemed probable, which showed the daughters hastening towards the mother in the centre and a wildly gesticulating group of the sons in the rear rushing up to protect the women. Probably this would have been balanced by a similar group on the other side, the figures of which are lost.

The Lyceum Theatre.

IT is stated that Mr. Bertie Crewe has been appointed architect for the rebuilding of the Lyceum Theatre as a music-hall, and that the works will be begun forthwith, leaving nothing of the present fabric with the exception of the portico in Wellington-street, the back wall in Burleigh-street, and a side wall of the auditorium. The Lyceum was opened for English opera on July 14, 1834, having been built for S. J. Arnold by Grissel and Peto, at a cost of 35,000*l*., from the plans and designs of Samuel Beazley, who had been the architect also of its predecessor, erected in 1816 at a cost, it is said, of 80,000*l*., and burned on February 16, 1830. The site of the former Lyceum was shortly afterwards taken for the making of Wellington-street as an approach to Waterloo Bridge. Beazley built a new green-room in 1838, and a suite of rooms entered from Exeter-street for the "Sublime Society of Beefsteaks." C. J. Phipps carried out some alterations of the house thirteen years ago, including new entrance and exit doors, and an enlargement by taking in the two restaurants on either side of the front in Wellington-street. The freehold property, which includes six adjoining premises in Exeter and Wellington streets on a site of about 23,500 ft. superficial, was offered by the directors for sale at auction on April 23 last year, but was bought in at 260,000*l*. The shareholders were unwilling to expend 15,000*l*. or more upon certain structural changes required by the London County Council. The particulars of Sir William Emerson's award in the arbitration before him, as between the proprietors and the Council, will be found in our number of July, 12, 1902. A plan, and an interior view of the present house, are published in *The Builder* of October 16-23, 1847.

Torquay Public Library Competition.

THE designs for the proposed Carnegie Public Library and Municipal Buildings at Torquay are to be sent in next Monday, March 7. One of the competitors sends us a printed circular from the Town Clerk, dated February 17, but which he says he only received on February 25, and which contains among other things the statement that "no opening lights or windows may be put in the building so as to give or open upon the adjoining property within a distance of 15 ft. therefrom." This is a stipulation which may of course affect the whole planning of a building, and to send it to competitors as late even as February 17 is most unfair; it may mean re-arranging and re-drawing the plans. It seems that an assessor has already been appointed who is supposed to be advising the Corporation; what has he been about to allow them to do this?

LETTER FROM PARIS.

THERE are many candidates for the position formerly held by Gérôme at the Académie des Beaux-Arts, but M. Carolus-Duran seems to be the favourite. The other candidates are MM. Gabriel Ferrier, Albert Maignan, Schommer, François Flameng, Toudouze, and Tony Robert-Fleury, the new President of the Société des Artistes Français (Old Salon). The latter will probably not get sufficient votes in respect of his artistic talent, but his personal quality will count for a good deal.

It is proposed to erect in the Palais Royal Garden a monument to Gustave Larroumet, to be designed by his son-in-law, M. Roussel. It is to consist of a stele, decorated with a relief figure of Minerva, with a portrait bust on the top of the stele. There is a proposal also to place a monument to the dramatic critic Sarcey, as a pendant to that of Larroumet.

The new Armenian chapel designed by M. Guilbert, the architect of the Bazaar Memorial Chapel in Rue Jean Goujon, is to be opened shortly. It will be decorated internally by mural paintings in an Oriental style, by M. Leroy, who has chosen for his subject "The Vision of Ezekiel."

M. Paul Meurice, the friend of Victor Hugo, and the organiser of the Hugo museum in the house once occupied by the poet on the Place des Vosges, proposes to memorialise the Paris municipality to transform the Place into a kind of monument of literature, by filling it with statues of authors of the Romantic School. According to his scheme, we are to see grouped in the middle of the lawn the statues of Balzac, Lamartine, de Musset, Alfred de Vigny, Chateaubriand, Georges Sand, etc. This is to be, in fact, a kind of "Poet's Corner" of Paris, and the idea has been very favourably received by men who are eminent in literature, science, and politics.

The Carnavalet Museum has received an interesting addition to its historic contents in the shape of the cradle originally made for the Prince Imperial, which the Empress Eugénie has offered, through her secretary, M. Pietri, to the City of Paris. This cradle, executed after the design of Baltard, the eminent architect, cost 160,000 francs. It is in rosewood, and in the form of a ship, with an eagle with wings outspread, executed in solid silver, at the prow; on the poop is a statue, also in silver, representing the City of Paris, holding aloft an Imperial crown, from which falls a lace curtain. M. Simart modelled the sculpture, and M. Hippolyte Flandrin designed the enamel work. It is altogether a remarkable work of art, and quite in its right place in the Carnavalet Museum.

At the École des Beaux-Arts the competition for decorative composition has just been decided. The subject given was "The Base of a Decorative Mast," and the prize has been awarded to Chialiva, a pupil of M. Bernier. At the "Union des Femmes Peintres et Sculpteurs" the first prize has been awarded to Mdlle. Chauchet, the prize in sculpture to Mme. Brach, that in decoratif art to Mme. Jeauniére, and that in miniature to Mme. Richard. The exhibition organised by the Union Syndicate des Peintres et Sculpteurs has been opened at the Petit Palais, but presents little that is of interest.

The women students have scored a fresh success at the École des Beaux-Arts, Mdlle. Rondenay having obtained the prize in the Concours d'Attainville and been classed first in the "Concours d'Après Nature" among the candidates for the Prix de Rome. This lady has, therefore, a very good chance of gaining admission to the Villa Medici.

Under the arrangements made by the new Directeur des Beaux-Arts, M. Henry Marcel, the château of Malmaison will soon be open to the public. It is intended to present a faithful restoration of the condition of the château at the time when it was Napoléon's favourite abode. A great deal of old furniture, ornaments, and textiles, selected by Josephine, have been got together from various national museums and palaces, especially Compiégne and the Trianon.

The "Vieux Paris" Committee has been recently visiting the interesting relics of the Gallo-Roman period which have been discovered in the labyrinth of small streets between the Collége de France and the Ecole Polytechnique. Three fragments of an ancient walling, among them a large circular wall of which the whole circuit is to be traced, have been discovered about four mètres below the present surface. It was through this part of Paris that there passed the ancient Roman aqueduct bringing the waters of the Rungis; and in the IIIrd century the side of the hill then called "Mons Lucotitius," and, later, "Montagne Ste. Genévève," was covered with habitations and public buildings. If is, therefore, hoped that the exploration, which will be continued, may bring to light other interesting remains.

At the first banquet of the new "Société du Nouveau Paris," which took place in February, under the presidency of M. Frantz Jourdain, President of the Society, this gentleman, in an interesting speech, pointed out the principal objects for which this society was formed. He affirmed that this society of artists was quite as respectful of the old monuments, which are the artistic richness and embellishment of the capital, as the members of the "Vieux Paris" committee. The new society had no intention to demolish any of the beauties of the city, or to transform Nôtre-Dame into a workshop. What the "Nouveau Paris" desired was the renovation and the sanitation of the old quarters of the town, and to do away with the unhealthy and impracticable streets without beauty, which still existed. M. Jourdain stated that the various societies which aimed at the preservation of the vestiges of passed ages, unfortunately always protested against any schemes for the embellishment of the capital, and he referred to the difficulties brought up by the Commission du "Vieux Paris" committee of that time against the formation of the Place de la Concorde, and the more recent protests made by the existing committee against the formation of the Avenue Nicolas II. M. Bouvard, director of the Services of Architecture of the town of Paris, who represented the Prefect of the Seine on this occasion, assured the young society that it would have on its side all the helpful efforts of the municipal administration, and M. de Tizac, representing the Minister of Fine-Arts, pointed out to the members some of the improvements already made and to be made, and gave them his assurance that the minister would aid their efforts.

The Paris Municipal Council, when voting at its last meeting the future arrangement of the grounds of the Champ de Mars, added that a portion of this ground should be reserved for "habitations à bon marché." But this portion of the vote met with the disapproval of the Prefect when he transferred the vote to the Minister of the Interior. In order to come to some determination the minister has appointed a commission to examine the votes and opinions of the members of the Municipal Council, and it will only be after the adoption of the proposition of the Council regarding the economical dwellings, or its rejection, that the setting out of the grounds and the commencement of the building work can be put in hand.

The Société Nationale des Beaux-Arts has appointed the following officers for 1904:—President, M. Carolus Duran; Vice-presidents, MM. Roll, Rodin, Waltner, Bésnard,; secretaries, MM. Béraud and Billotte; and treasurer, M. Dubufe.

At the next meeting of the "Société des Amis des Monuments Parisiens," the following questions will be discussed: Modern Paris; the lighting of the Avenue des Champs Elysées; the newly-discovered basement of the Louvre; the demolishing of the Caserne des Celestins; and the aspect of the quays of the Seine since the 1900 Exposition.

The death is announced, at the age of fifty-six, of the painter-engraver Bertrand, who was a pupil of Cabasson and of Pannemaker *père*. For many years he exhibited at the Salon engravings on wood, and contributed not a little to revival of this art in France. He leaves a great deal of important work in the shape both of original engravings and reproductions. In the last Salon his engravings in black and white and in colour attracted much attention.

BATHS, LIVERPOOL.—The Chairman of the Baths Committee and the Chief Superintendent recently visited London for the purpose of instructing the architect, Mr. Snell, to prepare sketch drawings of a scheme for baths on the George's Dock site, to cost not more than 60,000*l*. These have now been submitted to the Committee, who have resolved that the Chief Superintendent arrange for complete sketch drawings, showing elevations, etc., to be prepared. Tenders have also been invited for the erection of baths at Picton-road.—*Liverpool Mercury.*

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, Regent-street, W., Mr. Aston Webb, President, in the chair.

The business of the meeting was the election of the Royal Gold Medallist for the current year. The chairman moved, and it was carried *nem con*, "That, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be presented this year to M. Auguste Choisy, Inspector-General in the Service des Ponts et Chaussées, Paris."

The ninth general meeting (business) of the session was then held, when a vote of regret at the decease of Mr. Percival Gordon Smith and condolence with his relatives, was passed.

The following gentlemen were then elected as Fellows: Messrs. A. E. Bartlett, London; T. Cooper, Birmingham; B. F. Fletcher, London; S. F. Harris, Northampton; Arthur Keen, London; C. R. Hall, London; F. M. Kent, Pietermaritzburg, Natal; H. W. Johnson, Market Harborough; A. H. Parker, Worcester; As Associates: Messrs. H. W. Asman, Bradford; L. L. Bright, Nottingham; M. N. Castello, Sydenham-hill, S.E.; H. W. Cubitt, London; W. R. Davidge, London; W. J. Delbridge, Greenwich, S.E.; G. Dykes, Junr., Hamilton; H. T. Fowler, Barrow-in-Furness; H. Griffiths, London; E. G. H. Gunn, London; W. Hemingway, Bolton; H. W. Hobbiss, London; F. G. Johnson, Risca, near Newport; J. S. Lee, London; H. B. Mackenzie, London; F. W. Newman, Hampstead, N.W.; H. M. Pritchard, Cardiff; T. H. Robinson, London; A. Rollo, Westminster, S.W.; G. L. Russell, Hackney-common, N.E.; H. W. Stone, Birmingham; J. J. Wood, Leeds.

As Hon. Corresponding Member: Glenn Brown, Washington, D.C., U.S.A.

Resolutions as follows were then passed:—

That the necessary alterations to the by-laws be drafted and submitted to a special general meeting to provide that after December 31, 1906, every person desiring to be admitted a Fellow shall be required to have passed the examination or examinations qualifying him as an Associate, or shall be elected from the ranks of the Associates; but that, in exceptional circumstances, the Council shall have power to dispense with such examination or examinations.

Further, that during the intervening period, every architect eligible under the charter for election who desires to join the Institute as a Fellow should be encouraged to do so.

The Council also submitted the following amendments to the "Suggestions for the conduct of architectural competitions":—

Clause 2 (*a*) to read as follows:

"To draw up the particulars and conditions (as far as possible in accordance with the principles herein set forth) as instructions to competitors, and also to advise upon the question of cost and the amount and apportionment of the premium or premiums.

Note.—In drawing up the instructions it is desirable to divide them into two distinct classes:

(i.) *Conditions—i.e.*, those which must be strictly adhered to.

(ii.) *Suggestions—i.e.*, those which are merely optional or of a suggestive character."

Clause 7: Delete entirely.

Renumber clauses 8, 9, 10, 11, as 7, 8, 9, 10 respectively.

Clause 12: Delete all first paragraph and renumber the second paragraph, beginning "It is essential . . ." as clause 11.

Add the following clause as the new clause 12:—

"The author of the design placed first by the assessor or assessors should be employed to carry out the work, and he should be paid in accordance with the Schedule of Professional Practice as to the Charges of Architects sanctioned and published by the Royal Institute. If no instructions are given to him to proceed within twelve months from the date of selection, or if the proposed works are abandoned by the promoters, then the selected architect should receive payment for his services in connection with the preparation of the competition drawings of a sum equal to 1¼ per cent. on the amount of the estimated expenditure."

These amendments having been passed,

Mr. H. Hardwicke Langston asked the following question: Is it in the power of the Council to say whether it is the intention of the Registration Committee, in view of the great interest attached to the movement for the statutory qualification of architects, to take a poll of the members of the Institute upon the general principle involved?

The President stated that he was unable at present to answer the question as the Committee had not met yet.

THE SURVEYORS' INSTITUTION:

BRITISH TIMBER AND ITS USES.

AN ordinary general meeting of the Surveyors' Institution was held on Monday evening last week at No. 12, Great George-street, Westminster, Mr. A. Buck, President, in the chair.

The minutes having been read and confirmed, and some donations to the library and the library fund having been announced,

Mr. H. J. Elwes, F.R.S., read a paper on "British Timber and its Uses." After some preliminary remarks he said that in the days when we relied upon our own timber for nearly all local uses, and when the production of oak timber for house and ship building, ash and elm for waggon building, pit wood for mines, and underwood for hop-poles, fencing, hurdles, and firewood, was the main idea which governed landowners, a system of managing woodlands was developed which at the time was no doubt the best from an economic point of view. At that time local builders, carpenters, coach-builders and furniture-makers were ready buyers of almost all kinds of timber, and kept stocks of timber to season properly because they could not carry on their trades without it. Much of this timber was no doubt more difficult and expensive to select and to work up than foreign timber, because it was often grown on land which our ancestors had not thought good enough to cultivate. But even on good land one would not expect hedgerow timber, or timber grown in open woods, where underwood was a regular crop giving a certain annual return, to be as clean and straight and suitable for building purposes as timber grown in dense forests of great extent, from which only selected trees were exported. In consequence, architects had in many cases stipulated that only foreign timber should be used, and even trades such as the High Wycombe furniture factories, which had been founded and developed on purely local supplies, had gradually taken to foreign timber to a great extent, and in consequence the demand for most kinds of home-grown timber, especially when of small size, had fallen off, and underwood was in many districts only saleable at a price which left little or nothing for the rent of the land when all expenses were paid. Iron fencing hurdles and wire netting had largely superseded wood. Open hearths suited for burning faggots had almost disappeared from our modern labourers' cottages, and as long as coal remained cheap a great deal of wood was hardly worth carrying away unless close to a market. At the same time that this state of things was growing up the preservation of game became much more general, and shooting, which was formerly confined to landowners and their friends, had become so popular a sport that it was now much easier and more profitable to let inferior land for sporting than for agricultural purposes. One of the great difficulties one had to contend with was to find men at a reasonable rate of salary who were really competent to carry out a plan of operations which, after long and careful consideration, had been determined on as most suitable for any particular district. A serious drawback to the use of English timber was caused by the rates charged by railway companies for carriage, which in many cases were much higher than those charged on foreign timber, especially pit wood and deals. It was the general opinion of English timber merchants that both the system of measuring adopted by the railway companies and the rates charged operate very unfairly on British timber. As the railway companies were in many cases the best customers of the timber merchants, those merchants were often unwilling to fight them on the question of rates. The loss therefore fell entirely on the landowner, because the price offered by the merchant must always be based on the cost of getting the timber to market. Another matter was the question of rates and taxes; the system of taxing and rating woodlands was grossly unfair, and it was surprising that it had been allowed to grow up.

In the hope of inducing agents and landowners to turn over some portions of their land to the unchecked operations of timber culture, he ventured to suggest a few ideas. We have in England a great variety of soils and climates, capable of growing to a very large size many kinds of trees which are not indigenous. Some of these when planted with due knowledge of their requirements, and with the object of producing timber rather than for ornamental purposes, would, he believed, be more profitable than the common timber trees. He had been much impressed by the general unwillingness of timber merchants to recognise as valuable timber some of the trees which he was going to talk about, and it was no use planting them as forest trees if we could not educate the public to believe in their value by showing them in use, and so create a market for them. He had collected a number of specimens, some of which he showed in order to give an idea of the immense variety of trees there were which grow to timber size, and to the nature of their wood.

The amount of waste which goes on on all estates by allowing trees to grow too far apart, by allowing them to stand long after they are mature, and by planting them without regard to their individual requirements as regards soil and position was very great. Many landowners generally considered it almost a crime to cut a tree until it was half dead, and the fate of many of the most valuable trees was to die standing or to be blown down, and eventually find their way to the bothy fire or the log heap. A friend of his recently panelled a room at a cost of 700*l.* with so-called Italian walnut when he could probably have found a tree on his own estate that would have done the work equally well at a quarter the cost.

He had seen houses where thousands had been lavished on internal decoration with foreign wood not so good as could be done with timber off the estate if only the knowledge to select it existed and time were allowed to season it properly. Where could modern panelling be seen equal to what our ancestors did with their own oak?—of which the dining-room at Gilling Castle, near York, is one of the most beautiful examples he knew; and yet we saw Austrian and American oak, pitch pine, and other inferior, though perhaps not cheaper, woods commonly used at the present time.

The author then referred to various trees which were included under the heading of British timber. Oak was one of the most valuable trees we have, though it took longest in coming to maturity. Its value had fallen owing to large importations from Austria, which had now superseded the so-called Riga oak. American oak was now also being used to a great extent on account of its lower price, though it was believed, by those who had most experience, to be inferior in strength and durability for railway waggon building. We have in some parts of England a form of oak known in the trade as brown oak, whose value for internal house decoration had recently led to a great increase in its price, principally caused by a demand from North America, to which country most of the best of it goes at very high prices. When the tree is felled before the timber has become rotten at heart it could be used with a beautiful effect, being much superior in colour to that of the foreign wood for panelling or cabinet-making; the latter was often made dark by fuming or staining, but did not have the same rich colour as good brown oak. More often the trees when felled were found partially hollow, and in such cases the soundest parts of them were cut into thick veeners or plating, because, owing to the liability of this wood to warp, crack, and twist, it was very expensive and difficult to use except in the form of veneer, and had to be laid on stronger and more reliable wood as a backing. Elm was one of the fastest-growing hardwoods we have, but it had a tendency to form large branches, which, if not pruned when young, often split the trunk before maturity. Ash was the tree which, in the opinion of most timber merchants, was the most profitable hardwood to plant wherever the soil suited it. The timber was now, when of good quality, worth more than that of oak; it grew nearly twice as fast. It was less exposed to foreign competition than any timber we have. It seeds itself more readily than any other English hardwood, except sycamore, and was worth money at a smaller and younger stage than any other hardwood except chestnut. It was a tree for which no substitute had yet been found, and one of the hardiest trees and less subject to disease or insect attacks than most, though in low-lying and damp spots it suffered from late spring frosts.

The author then referred to several other

woods. Speaking of cherry, he said it was a tree whose value as timber was not recognised in the trade, though formerly much more used for furniture and cabinet making. It grew fast, straight, and clean on poor calcareous soils that would not grow many trees well. It attained a much larger size than was usually known, especially when drawn up by beech. He had seen trees in Surrey containing over 100 feet of timber, and had felled one on his own land 8 ft. in girth. Black poplar was another tree eminently suitable for growing in damp and water-logged situations, where it attained a great size in a short time, and though not a timber of much intrinsic value, and therefore not to be planted for profit far from a market, might bring a large return in a short time.

As to the conifers, larch was worth all the rest put together. Unfortunately we could not now grow larch as we used to do, partly, in his opinion, because the necessary care was not taken to select seed from healthy vigorous trees growing in a climate where the disease was not prevalent, as it was now in most parts of England and Scotland, and because the seed was not allowed to remain on the tree till thoroughly ripe. Larch was always saleable, and always likely to be wanted, both in small and large sizes, and the only source of foreign supplies which was likely to compete with our own was in the larch forests of the White Sea and Petchora districts in North Russia.

Scotch pine was a tree most suitable for sandy soils in the South of England, and for peaty soils in the North. Where it could be grown to a large size, and close enough to keep it clean and straight, it was a valuable tree, but its strength depends on the amount of redheart wood, which time alone will produce.

Spruce was the worst of all our common conifers from a timber point of view, and, notwithstanding what writers tell us, could very seldom be grown thick enough to keep it free from the branches which make English-grown spruce usually so knotty and weak. It was a valuable nurse for hardwoods where the soil was moist enough. Silver fir was a timber which was much more thought of in Germany than in England, and Douglas fir was the fastest-growing conifer we have.

The author then dealt with trees which, though not generally looked upon as forest trees, and as yet seldom planted except for ornament, would, he believed, if tried with a due knowledge of their peculiarities and requirements in the way of soil, climate, and treatment, be as valuable, if not more so, as some of those of which he had already spoken. No wise man would plant them largely for timber until he knew all that he could learn about them and until he had seen that they would grow on similar soil and in a similar climate to his own. His successors would also have to take the risk of their not finding a market for their timber equal to their actual value, and it might prove that some of them would develop defects with age which we could not now foresee.

Of hardwoods there were not many, and though most of them have been introduced for a long period, the rage for planting conifers, which sprang up about 1830 and which had not yet died out, had led to their being almost forgotten by modern planters. The first and the most valuable from a timber point of view was *Juglans nigra*, a black walnut. Though this tree did not come to a large size except on good deep soil in the warmer and drier parts of England, yet he had seen trees in Kent not over 100 years old which contained about 100 cubic feet of timber, and this was fully equal in colour to that of the American timber which was now becoming very scarce as large logs, and which was worth from 5s. to 7s. a foot, and likely to become dearer. Another was the American ash, of which there are several species. He had lately been making experiments with these, which in their own country were of equal value for the same purposes as English ash. They had the advantage that their seed germinated the year after it was ripe instead of lying a year n the ground, and a bed of American ash, which he sowed in June, 1901, escaped the severest spring frost, which cut off 90 per cent. of the English ash seedlings in the same nursery. This tendency to late growth had also been found very advantageous in Germany, where the American ash had been used for some years. It grew with great rapidity, and at Kew on poor dry soil, which would not grow first-class English ash, it was one of the most vigorous, healthy, and promising timber trees in the gardens. There are three species now in cultivation. The tulip tree was one of the most beautiful flowering trees we have, and it comes to a great size on deep, moist, heavy soil. Its timber was now very largely used for furniture and cabinet making under the name of "whitewood" or "canary wood," and was known as yellow poplar in the United States. Its great defect as a forest tree was the difficulty of establishing it when young, as it transplants badly and grows slowly at first. Though quite hardy, he should only recommend it for the warmer parts of England, as, like most American trees, it liked hotter summers than we usually get here.

The plane tree also produced excellent timber, which was very ornamental when taken from trees of some size and age. In France and America it was largely used for inside work, and the better parts were cut into veneer for decorative purposes.

Ailanthus glandulosa, a Chinese species, known as "tree of heaven," was another tree which grew to a large size, ripens seed in England, and produces excellent timber.

Sorbus domestica was a rare tree known as the service-tree, though quite distinct from the true service, *Pyrus torminalis*; it produced, at least in some cases, the most beautifully-waved timber he had ever seen of native growth. It was quite unknown to English timber merchants, but highly valued in France, where it was grown in some districts as a fruit tree.

Proceeding, the author said: "Among the conifers not generally treated as forest trees I will mention the following:—*Thuja gigantea*, the red cedar of British Columbia, of which I show a plank cut from a decayed tree in Devonshire, which, though a poor sample, is but the best I can get at present, also a specimen lent me by Mr. Turner, the Agent-General for British Columbia, which shows its true character. This tree grows rapidly on almost all kinds of soil, but is especially suited to damp climates and wet bottoms, where larch will not grow. I have measured trees over 70 ft. high and 6 ft. in girth at fifty years of age. I have never seen it injured by frost, insect attacks, or disease in any part of England, though it is said to be subject to a fungoid disease in some parts of Scotland. It stands close planting and dense shade. It is extremely easy to raise from seed, and I have raised thousands from trees growing at 700 ft. elevation on the Cotswold Hills. It transplants readily in spring or autumn. Its timber is so durable that a tree fallen in the forest, on the trunk of which a hemlock spruce has grown for over 150 years, remains sound, as shown by the photograph I exhibit. It makes excellent straight-grained shingles and boards, which are preferred to any other wood for interior work in British Columbia, and take a beautiful polish. It is admirably suited for telegraph poles and fence posts.

"*Cedrus Atlantica*.—The Algerian cedar has already proved its ability to grow on various soils in England, and is perfectly hardy on all parts of England. It has a much more erect habit, and is far less branchy and a faster grower than the cedar of Lebanon. It ripens seeds in good seasons in England, and can be procured at a cheap rate from French nurseries. It is not so easy to transplant as some conifers, but much easier than the Corsican pine. . . .

"*Cupressus macrocarpa*.—An extremely fast-growing and beautiful species, not perhaps hardy enough for the colder parts of the country, but a most valuable tree for the South and West of England, especially near the sea. In Sussex on poor soil I have seen trees 80 ft. high and 12 ft. in girth at about fifty years old. It ripens seed freely, and is easy to raise, attaining 3 ft. in height at three years old, whilst silver firs under similar conditions were only 3 in. . . .

"*Cupressus Nutkatensis*, often incorrectly called by nurserymen, *Thujopsis borealis*, is another tree from the coast region of British Columbia which on my poor limestone soil grows very freely, though not so fast as *Thuga gigantea*. . . .

"Of the Corsican pine I need say little. It has thoroughly proved its good qualities in almost all parts of England as a forest tree, especially on dry limestone soils. Its greatest defect is the difficulty of transplanting it, on account of its bad root system when young. . . . When planted in the autumn without special precautions, 50 to 90 per cent. often die. Its timber, when it is grown thickly enough to suppress branches without weakening the tree, is very good, and, being more resinous, is said to be more durable than that of many conifers. . . ."

In conclusion the author said he was now engaged on a work on the trees which attain timber size in Great Britain and Ireland in which he had the assistance of Dr. Henry, of Kew. They would be glad to receive and name, now or later, any specimens of wood or trees which the members, in the course of their business and pleasure, might meet with and think worthy of notice.

A brief discussion followed, in which Mr. R. Anderson and Mr. G. Craggs took part, and the meeting was then adjourned.

ARCHITECTURAL ASSOCIATION CAMERA AND CYCLING CLUB.

ON Monday last, 29th ult., Mr. George Trotman read a paper before this club on "Gloucester," illustrated by a large number of lantern slides.

Mr. Trotman commenced his lecture with an account of the Cathedral, showing the manner in which the Norman work had been cased and altered during the Perpendicular period, the photographs of the tracery inserted in the arches and of the vaulting being particularly interesting. The cathedrals of Worcester and Hereford were then compared with that of Gloucester, and an account of the churches, public-houses, and domestic buildings of Gloucester City followed. Several photographs were then shown of churches in the district exhibiting the peculiar Gloucestershire stone spires, very lofty and attenuated but withal graceful. The lecture concluded with an exhaustive description of the domestic work in the neighbourhood, many beautiful illustrations of the stone-roofed houses being shown, nearly all of which exhibited the Gloucestershire lack of valley gutters, the intersection of the roofs being protected by the carrying round of the stone tiles. Mr. Trotman showed how a general type of design was followed in nearly all the domestic buildings of the XVIth century, a gable being provided on each face and each pierced near the apex by a circular window; below this is a square-headed two-light window with label mould, below this on the first floor a square-headed three-light window with label mould carried round the building as a string course and on the ground floor a similar four-light window. Where the fall of the ground allows, a basement is formed with door in the centre and a two-light window on each side. The graceful proportions of these houses are largely due to the lowness of the rooms, which average 7 ft. 6 in.

Mr. G. H. Fellowes Prynne, in proposing a vote of thanks to Mr. Trotman, referred to the casing of the Norman work during the XVIIIth century and wondered what the public would say if a modern architect were to commit a similar act of vandalism. Continuing, he referred to the peculiar beauty of Worcester, which rendered it, above all other cathedrals, a place for the contemplative study of architecture.

Mr. W. Williams, in seconding, suggested that the reason why many Lady Chapels, that of Gloucester being no exception, were not axially in a straight line with their cathedrals, was symbolical of Christ's head leaning towards His shoulder when on the Cross. Mr. Williams concluded with an amusing description of a visit to Gloucester he had made with Mr. Trotman.

The discussion was continued by Mr. R. Wellbye and Mr. G. H. Lovegrove, and the vote of thanks was cordially agreed to.

LONDON COUNTY COUNCIL SCHOOL OF BUILDING, BRIXTON.

ON Friday evening last week the new London County Council School of Building, Ferndale-road, Brixton, was opened by Sir William B. Richmond, K.C.B., R.A. The building was erected for a swimming-bath, and is said to have originally cost 20,000*l*. It was afterwards taken over for the purposes of the Brixton Polytechnic, which was conducted under private auspices and had a number of trade classes which were accommodated in the annexes surrounding the central building. Then the Lambeth Vestry purchased the building for public baths, but subsequently selected another site for the purpose, while local efforts were made to sell the building to the County Council for 4,000*l*. Eventually the Council took them over, and

alterations have been made under the superintendence of Mr. B. E. Nightingale at a cost of 18,000*l*. The premises comprise the great hall, with an open floor space measuring about 150 ft. by 60 ft., in which the various trades can be brought together for combined building operations, and in which also it may hereafter be found possible to provide appliances for the testing of builders' materials and composite structures. In the annexe on the north side of the hall adjoining the railway are workshops opening directly out of the hall for plasterers, masons, and bricklayers, and it is proposed to convert a part of the annexe on the west side into a workshop for leaded glass. On the south side on the ground floor are a plumbers' shop, affording accommodation for nearly forty plumbers working at one time, an engine-room, boiler-room, and accommodation for electric-lighting plant and a metal workshop not yet fitted up, and class-room and drawing-office for building construction. On the first floor, leading directly off the gallery of the hall, are a joiners' shop, measuring about 50 ft. by 35 ft., a painters' and decorators' loft, and a large drawing-office for architectural work, from which a small class-room can be separated by a movable partition. The secretary's office, the principal's room, and the room for the accommodation of the teaching staff are provided in the house in Ferndale-road, which communicates with the School by a covered corridor. The premises also comprise about 18,000 sq. ft. of land available for building if and when the requirements of the School demand additional accommodation, and it will be possible on this land to provide class-rooms and laboratories for scientific study and research in connexion with materials used in the building trades or for other purposes, or classes might be arranged in connexion with any other local industry. The School, as now erected and equipped, may form the chief building-trade school in the South of London. Drawing, designing, modelling, and carving in wood and stone will be taught in connexion with the building trades, but the School will not comprise what is ordinarily known as a school of art.

Over 250 students have joined the School, and work of various kinds was being proceeded with on Friday prior to the opening meeting. A large number of interesting exhibits, chiefly of work done in other technical schools, was shown.

Mr. E. A. Cornwall (Vice-chairman of the L.C.C.) took the chair at the opening ceremony.

Sir William Richmond said he was extremely glad to see so many men present, because, although women were most useful adjuncts and supplied the place of one side of man, yet after all, if they wanted to make a thing move, the thing must be moved by men. He had been asked to speak that night, he supposed, because he was an artist who did not occupy himself only with painting upon canvas, but who had interested himself all his life in various trades and enterprises belonging to all crafts. He thought, in the first place, that there was nothing more weakening to either the personal or the national system of enterprise than mere specialism. The object of the County Council, so far as he could observe it, was to enlarge the views of education in this country and to put them upon even a higher footing than those occupied by continental nations. This had been a very difficult object and a very difficult motive power for the County Council to advance, because for years and years England remained behind, and there was little or no education for the masses. During the last fifteen years the London County Council, in the face of opposition, had proceeded upon a straightforward path, and with great courage had initiated a system of education for the people. When he said the people he meant the whole English race, for it was their industry which was the greatest security of the nation. He had journeyed in many lands and mixed with many peoples, and in a sense could call himself cosmopolitan, and when, after sojournings in Germany, France, Italy, Austria, and even Russia, he had come back to this country, he had seen a strong desire on the part of the people for education, but found they had been held. Now the moment had come when the people held the nut in their hands if they choose to crack it. It rested now with them to take up the opportunities which were offered, and he believed they would do so. Let them remember that in this very building enterprise for which that institution had been started there was enormous need for good work, for simple and delightful design, and for simple and beautiful workmanship—not necessarily ornamentative, but admirable for its purpose and admirable by view of its construction. There was a great Italian architect who said that architecture was composed of three first principles—utility, stability, and beauty. Unlike many modern people, he put beauty last. Why? For a very simple reason—because, if a thing was stable and useful in the real sense of the term, the chances were that it was beautiful. What he apprehended they had to do in that School was to examine all modes of building and building construction which would serve their purpose through life, but as an old hand he would recommend that in the first instance they should remember the word caution. Let them remember that in building, if the parts and the main parts of the building which struck the eye were not desirable and delightful, they might clap on ornamentation *ad infinitum* and never make a desirable building. What they all wanted to see in London was the doing away with the sham façade—with the façade which had no part and parcel with the great constructive elements of the building. What he would like to see taught in the School was that out of construction came all ornament. What was a Greek temple? A Greek temple was probably the most simple piece of construction that was ever invented. It was a series of columns supporting a roof; within it was the temple devoted to the purposes of divine worship. That was all, and yet for 2,300 years everybody almost had been talking about this wonderful art. Some had imitated it with the utmost futility in modern times. In London we have a strange climate. We have alternations of golden heat, rain and fog, and therefore the architecture for London to his thinking ought to be of the most dignified and simple kind. Projecting cornices and such-like were absurd; everything which caught the dirt was ridiculous addition to the building. Probably the best architecture adapted for London was that which they knew of as the architecture of the time of Queen Anne. He began by saying that they did not want to be specialists, and he would add that even those who were going to put themselves heart and soul into one trade would make their minds bigger and broader by taking advantage of the other kinds of education which the County Council provided. They must not allow themselves to get into grooves. A rich mind produced a rich product, and a poor mind could only produce a poor product. Sir William Richmond concluded by declaring the building opened.

A hearty vote of thanks was accorded Sir William on the motion of Mr. Hubbard, L.C.C., seconded by Mr. F. Dolman, L.C.C.

Sir William Richmond, in reply, advised the people to enlarge their educational facilities and limit the public-house licences. Let them say, "We will not be called the most industrious country in the world; we will *be* the most industrious."

MAHOGANY AND OTHER FANCY WOODS AVAILABLE FOR CONSTRUCTIVE AND DECORATIVE PURPOSES.

AT the eleventh ordinary meeting of the Society of Arts, held on February 24, at John-street, Adelphi, W.C. (Sir H. Trueman Wood, M.A., Secretary, in the chair), Mr. Frank Tiffany read a paper on this subject. Having referred to the depletion of the world's forests, and the need for the inauguration of an extensive and scientific system of reafforestation of the United Kingdom and Ireland, he said that the needs of general building were, in the main, well provided for with soft woods, but it was necessary to consider something beyond a mere granary—*i.e.*, the varied requirements of the architect, engineer and naval constructor, the railway carriage and coach builder, and those of the silversmith and cutler. The makers of fancy knick-knacks could utilise many beautifully fine woods which, on account of their small sizes, were not adapted for large constructive purposes. It was doubtful if wood, as an aid to constructive and decorative art, was appraised at its proper value in first-class building. Too often architects embodied in their original designs some charming features of woodwork, only to find when the tenders were submitted that the gross cost of the entire building was beyond the ideas of the principal or building committee. Then commenced the paring down, which usually resulted in the exclusion of high-class woodwork. It was to be hoped that in the proposed Liverpool Cathedral the blunder would be avoided of cutting down the wood at the expense of stone. The wealth of Liverpool should provide sufficient money to insure that every piece of wood shall be of oak or teak, either of which, if properly selected and manipulated, was almost imperishable and certainly more durable than stone.

With further reference to the "choice of woods," what could be more incongruous than a mahogany pulpit in a Gothic building, or to see drawing-room furniture made of oak? Certain woods were unsuitable for Chippendale or Sheraton furniture; for these styles Spanish mahogany was decidedly unique. Apart from style, there was also the question of the utility of a given wood for a specific purpose; thus, on the introduction of fine woods into the fittings and furniture of public buildings, offices, hotels, and steamers, where hard wear had to be stood, the architect should seek to procure such woods as would not readily indent or absorb the dirt and smoke incidental to the places named. To avoid these objections, it was necessary to choose woods which contain most of the essential features which give fancy woods their value. Briefly summarised, the salient features of what was required of any fancy wood was that it should possess more or less of the following attributes:—A hardness of surface, but it must not be of such hardness as to render it potty, or brittle, so as to be too difficult to tool; evenness of texture, that was an absence of undue variation of alternate layers; cohesion of fibre, along with an absence of resinous galls. It was also necessary that the wood would season more or less readily, without a tendency to tear itself into shreds, or to twist and warp, when seasoned; nor should it swell and shrink with every slight variation of atmospheric conditions. Colour and figure were points which allowed a considerable latitude of choice; it was, however, desirable, in high-class woods, that their colour should improve with age; it militated against value when they faded, got black, or became lifeless.

In cabinet-making glue played an important part; any wood which would not take glue was worthless for this class of work. It was also essential that a fancy wood should be capable of yielding a fine surface when polished; a wood which unduly absorbed polish was discounted. Many woods which possessed the attributes named lacked size; but those which had the essentials, combined with length and width, were invaluable in constructive and decorative art. An important point for the architect, before stipulating for any particular wood, was to learn if its specification would yield the sizes required; an iron girder could be made to any size, but, with an oak beam, its length and depth was limited to what the tree would yield.

There were three distinct woods, namely, mahogany, oak, and teak, each possessing such important characteristics as to justify the expenditure of labour in their manipulation, and so rank them as leading fancy woods. The commanding position of mahogany was not due to any mere freak of fashion, but to its own intrinsic merits, along with the abundance of supply; 30 ft. was not an unusual length, and the squares ranged from 12 in. to 50 in. Mahogany seasoned readily, with an absence of splitting and checking. Much of it was firm grown wood, not too difficult to tool. It was practically non-flammable; it was capable of a high finish in polishing, and as a groundwork for paint it was without an equal. Broadly, it could, with advantage, be used for almost every purpose of high constructive and decorative work. Speaking generally, the imports of Spanish mahogany—*i.e.*, St. Domingo and Cuba wood—possess the finest texture, and had, in a marked degree, those chemical constituents which caused the wood to mellow and improve in colour with age, giving them a charm which was distinctively their own. The supply from St. Domingo was now insignificant, and consisted chiefly of small chair-wood. The Cuban shipments afforded a good range of sizes, which fitted them for the highest purposes of constructive and decorative art. The wood was of firm, silky texture, without being too hard, and, when wrought, there was no tendency to warp. Much of it was only slightly figured; when richly figured it commanded high prices. The next mahogany in order of merit was Honduras baywood, especially the shipments from Belize and Trurillo. These came in larger sizes than Spanish wood, hence their greater adaptability for larger work. Their silky texture, along with a general freedom from serious heart shakes caused the wood to be much appreciated. In point of size, Honduras wood was excelled by

the Tabasco shipments, the latter also yielding fine textured, good coloured wood, but the heart shakes were usually more serious. Mexican shipments were much softer, and frequently contained corky heart wood, but the supplies to this country were practically nil.

Nicaraguan mahogany was chiefly shipped in the round, was of mild texture, but the supply was insignificant. Panama mahogany, whilst it was of good texture, was subject to worms, and it came in such a shockingly battered condition that it only realised low prices, and the shipments were too erratic to give it a place. From Guatemala there was a nice quality of mahogany shipped, but the heart shakes were serious. Unfortunately, whatever might be the merits of the mahogany shipped from the Central American ports the quantities arriving in this country were diminishing. But this was compensated by the development—especially into Liverpool—of the African mahogany business. Although the character of this wood varied, it embraced timber which contained, in a marked degree, those characteristics which make for value. The quantity received was simply enormous, representing the product of different districts; the wood of each had its own utility.

The lecturer proceeded to classify these woods, after which he dealt with oak, which he called the king of hard woods grown in the temperate zone. The different varieties were so diversified in colour, density, and size, that it would be impossible within the limits of a paper, to bring out all the attributes of a wood which entered so largely into heavy constructive work, such as bridges, roofs, and the under-parts of rolling stock, all of which were subject to strains and stresses requiring a tensile strength and a flexibility not equalled by any wood known, even if its specific gravity was 40 or 50 per cent. greater. For church and other interior fittings, or for furniture, whether required for hard wear or for the highest decorative art, oak stood unrivalled; but the variety must be considered in relation to the purpose for which it was intended. For fine work with intricate details possibly the best available was the Austrian wainscot, which, owing to its large mild growth, seasoned without unduly checking and splitting; its evenness of colour rendered it invaluable. Crown logs were imported in billet form, clear of heart, and should have deep sides and a narrow sole, otherwise they yielded too much wood, narrow and without figure. Wainscot oak from Lebau and Odessa was of smaller growth and of a more dense nature, hence more apt to split and check, nor could they be produced as clear of heart as was not only desirable but necessary; they should be avoided in first-class work. The American equivalent term for "wainscot" was "quartered," and by this system of conversion all the boards or planks showed the figure on the face; the wood was shipped square edged, one edge with the sap on; the range of width varied from 3 in. to 18 in., but anything above 8½ in. average was special. There were so many dealers in cheap lines, that unless one knew the source of supply there was no guarantee as to evenness of colour, but the right stock was obtainable from reputable importers; the uniformity of colour and the excellence of quality of the best imports from the States could not be surpassed by European wood.

Having dealt with the European shipments in the heavy oak trade, the author said that whether English brown oak was a variety, a freak, or the result of old age, time would not permit of consideration, but for absolute beauty there was no wood with which to compare it. Its knotty gnarled grain caused an endless variety of shade and colour, but to bring out the best results all flat work should be used in the veneer; to do this the present price of labour made the work costly, but the result would be better than many daubs which were current as works of art.

As to teak, it was to be hoped that it would be the one wood used throughout in the building of the great cathedral of Liverpool. Teak, whilst it was not difficult to tool, contained an essential oil which rendered it imperishable; as it resisted the alternations of damp and dryness, heat and cold; there was in it an absence of swelling and shrinking or warping, so that the architect had at his disposal an excellent wood either for external or interior fittings. In high-class work there was hardly any purpose to which it could not with advantage be applied. Its general uniformity of colour and grain was positively unique. Considering the many high essentials found in teak, and the remarkably fine sizes obtainable, both in logs and planks, and the freedom from defects in the latter, it was by no means a dear wood for good work. The best shipments were from Moulmein and Rangoon; the Java wood was too hard and gritty for work with much detail.

Having spoken of these three leading fancy woods, the author briefly referred, in alphabetical sequence, to the minor fancy woods and hard woods—*i.e.*, amboyna, ash, beech, birch, black ebony, blackwood, boxwood brigalow, California redwood or sequoia, canary-wood, cedar, chestnut, greenheart, hickory, kingwood or violetwood, lancewood, letter or snakewood, lignum-vitæ, jarrah, karri, maple, olivewood, padouk, rosewood, satinwood, sycamore, thuya, tulipwood, walnut, yew-tree, zebrawood, and others.

In the discussion which followed, the Chairman, Mr. H. Stannus, Mr. W. E. Graham, and Mr. A. R. Smee took part, and a vote of thanks was accorded to the lecturer.

THE LONDON MASTER BUILDERS' ASSOCIATION.

THE annual general meeting of the London Master Builders' Association was held in the Board-room, 31 and 32, Bedford-street, Strand, W.C., on the 25th ult.

The minutes of the last annual general meeting were read and confirmed, the report of the Council for 1903 was approved and adopted, and the audited accounts and balance-sheet for the year 1903 were adopted. The annual report stated that the decline in the volume of building operations mentioned in the last report had continued through the past year, which was generally admitted to have been the worst experienced by the trade during the last decade. The Council viewed with much concern the schemes advocated by certain public bodies to remedy slackness of employment. The schemes pointed to an unreasonable extension in municipal undertakings which were antagonistic to the legitimate interests of individual traders, and were calculated to increase to a very great extent the cost of production.

The Association's new subscription rule was working satisfactorily, with the result that substantial additions had been made to the Reserve Fund during the past year. Much more interest had been taken in the proceedings of the Council by members, and the Council urged all members to endeavour individually to strengthen the organisation of the Association by increasing its membership.

No trade dispute of any great significance had occurred during the year, and the Council noted with gratification the increasing usefulness of the Conciliation Boards in settling minor difficulties, and at the same time in affording opportunities to employers and workmen to better understand and appreciate each other.

They regretted that the Plasterers' and Plumbers' Societies were endeavouring to force London employers to pay, on their country jobs, the London rates of wages. This the Council was determined not to countenance, and the members of the Association who were carrying out works in the provinces were strongly urged to refuse to pay to workmen locally employed more than the local rates.

The Council reported that Mr. William Shepherd had consented to give evidence on behalf of the Association before the Royal Commission on Trade Disputes, and that the Council would continue to oppose the passing of the Plumbers' Registration Bill in Parliament.

The Association had been invited to give evidence before a Departmental Committee appointed by the Home Secretary, with a view to amend the Workmen's Compensation and Employers' Liability Acts. A conference had been held by the officers of the Association, the officers of the Institute of Builders, and the directors of the Builders' Accident Insurance. Statements to be laid before the Home Office Departmental Committee had been formulated, and Col. Stanley G. Bird, C.B., and Mr. Henry Holloway, J.P., had consented to give evidence on behalf of the building trade employers.

In reference to proposed alteration in working hours, the Council reported as follows:—

"Recognising the reasonable objections raised by members of the Association against the present winter working hours, your Council held a conference with the representatives of the various trade unions, with a view to making other arrangements of a more satisfactory character. Unfortunately, the conference did not result in an agreement, one of the chief objections raised by the trade unions being that the proposed alterations would involve trade union secretaries in many disputes with builders who are not members of this Association. Your Council hopes that this will induce the members of the L.M.B.A. to persuade builders who are not already members to join the Association. In consequence of the unreasonable demands made by the Crane and Engine Drivers' Society, your Council went fully into the matter, the result being the issuing of a notice containing recommendations to the members employing crane and engine drivers. . . . During the past year forty-two Council, Committee, Conciliation Board meetings and conferences have been held. . . .

Your Council reports, with the deepest regret, the loss by death of Mr. B. E. Nightingale, Mr. John Greenwood, and Mr. S. T. Turtle. These gentlemen were active members of your Council and were much esteemed by their colleagues. Mr. W. Hammond, Mr. L. Whitehead (Messrs. L. Whitehead and Co., Ltd.), and Mr. W. G. Sheldon (Messrs. John Greenwood Ltd.) were elected by the Council (*vide* Rule 12) to fill the vacancies caused by the death of Mr. B. E. Nightingale, Mr. John Greenwood, and Mr. S. T. Turtle. . . ."

The following elections were made:—As President, Mr. James Carmichael; Senior Vice-president, Mr. Fredk. Higgs (Messrs. F. and H. F. Higgs); Junior Vice-president, Mr. J. W. Lorden, J.P. (Messrs. Lorden and Son); Honorary Treasurer, Mr. Wm. Higgs (Messrs. Higgs and Hill, Limited); Honorary Auditor, Mr. Archibald B. Howard Colls (Messrs. Colls and Sons).

For the eight vacancies on the Executive Council there were twelve nominations. A ballot was taken, and the following gentlemen were elected:—Mr. F. G. Minter, Mr. E. S. Rider (Messrs. T. Rider and Son), Mr. L. Whitehead (Messrs. L. Whitehead and Co., Ltd.), Mr. G. Appleton (Messrs. Turtle and Appleton), Mr. W. Hammond, Mr. W. G. Sheldon (Messrs. John Greenwood, Ltd.), Mr. Henry Wall (Messrs. H. Wall and Co.), and Mr. F. S. Bywaters (Messrs. G. H. and A. Bywaters and Sons).

A hearty vote of thanks was given to the outgoing President, Mr. Ernest J. Brown, for the successful manner in which he had conducted the business of the Association for the past year.

Messrs. F. and T. Thorne, Poplar, were elected members of the Association.

THE QUANTITY SURVEYORS' ASSOCIATION.

A GENERAL meeting of this Association was held on Wednesday last in the Throne Room of the Holborn Restaurant, Mr. Walter Lawrance, F.S.I. (President), in the chair.

The meeting was the result of an adjournment of the General Meeting of November 18, last, for the purpose of confirming the Articles of Association, previous to registration, which had in the meantime been drafted by the Council.

Copies of the draft articles having been posted previously to intending members with an invitation for amendments, such amendments were put to the meeting by the Chairman, and, with few exceptions, the original draft stood unaltered.

It was decided to eliminate the words "of the United Kingdom" from the title, which would therefore read "The Quantity Surveyors' Association," and would by such title embrace members of the profession in the Colonies and elsewhere.

Some discussion arose on Clause 13 of the articles, which, as amended, reads as follows:—"Any member of the Association who shall supply bills of quantities holds himself responsible for their accuracy, and to pay for all losses caused by his errors therein (when called upon so to do by the aggrieved party). On the refusal of any member to recoup any loss, the Council shall, on the application of the aggrieved party, investigate the matter; and if the member refuses to pay any sum they, the Council, may find to be due through his negligence, he shall be at once expelled from the Association, and shall not be eligible for re-election until the amount is paid. On an application for inquiry being made to the Council, the Council shall decide what charge shall be made by them as costs of such inquiry, and the applicant shall guarantee the payment thereof by discharge of such sum by way of deposit as the Council shall determine."

It was further resolved at the meeting that, in order to ensure that none but fully-qualified quantity surveyors should obtain admission as members, every intending member, whether he had already paid his subscription or not,

should be compelled to fill up the formal application form to be provided, setting forth his qualifications, according to the requirements of the articles, which form should be thoroughly scrutinised by the Council, and, should an intending member not satisfy them as to his eligibility, he should be rejected; and, even if his subscription had already been paid, it should be returned to him in full.

The Articles as amended having then been unanimously adopted by the meeting, a formal vote of thanks was proposed by the Chairman, and seconded by Messrs. Hoffman Wood and Nixon, to Mr. F. B. Hollis, the Hon. Secretary, for the indefatigable and efficient way in which he had worked to bring the Association first into existence, and ultimately to a successful issue.

A vote of thanks was also tendered to Mr. Lawrance for his invaluable assistance in the drafting of the Articles, and for his attendance as Chairman of the meeting.

The proceedings then terminated.

THE BUILDERS' FOREMEN AND CLERKS OF WORKS' INSTITUTION.

THE annual dinner of the Provident Institution of Builders' Foremen and Clerks of Works was held on Saturday last week in the King's Hall, Holborn Restaurant, W.C., when a large number of members and friends of the Institution were present. The chair was occupied by Mr. James Carmichael, supported by Messrs. F. J. Dove, W. Duff, W. Gilbee Scott, J. S. Gibson, J. W. Lorden, Guy M. Nicholson, D. W. McInnes, J. C. Hill, F. E. Williams, E. Woodthorpe, T. Cortigan, (Secretary of the London Master Builders' Association), Councillors H. Corben and W. E. Buchanan, and others, the company numbering 624.

The loyal toast having been honoured,

The Chairman proposed the toast of the evening, "Success to the Provident Institution of Builders' Foremen and Clerks of Works." This annual dinner reminded one not only of the flight of time, but also of the legitimate claims of our less fortunate brethren. Each successive year brought not only a change of chairman, but also a change in the names and numbers of subscribers as well as the recipients of the Institution's bounty. That being so, he hoped they would not forget that they had met that night in the best interests of the Institution and in order to further those interests. The Institution had been in existence for about sixty years, and during that time it had spent about 12,000*l.* in relieving 109 pensioners. The affairs of the Institution were administered at a minimum of cost, and in the hands of Mr. Dove, the Governor, whom they were glad to have with them that night, subscriptions were absolutely safe. As to the men the Institution sought to help, he had the very highest appreciation of capable builders' foremen and clerks of works. He thought it was Mr. Carnegie who said that the secret of his success was to a large extent due to the fact that he was able to employ better men than himself. Any little success he (the speaker) had achieved in this Metropolis had been largely due, he had pleasure in saying, to the same cause. A good many builders would get on badly without their foremen, and he considered that the thoroughly capable builders' foreman who had mastered his specification—and by that he meant that he knew it so well that if he were asked a question he could answer it without referring to the book—who understood the drawings, and who could so regulate and place his labour (without bullying or hustling it) that every 10½d. paid in wages brought a shilling in return, was not only a boon to his employer but a blessing to the job on which he was engaged. More than that, he was a guide and example to his fellow workmen and a credit to his country. It was hard, therefore, that after years of hard work he should, through ill-health or misfortune, have to appeal to any institution for assistance, but when he did appeal let them see to it that it was to an institution able and willing to help. The remarks he had made as to foremen applied to the clerk of works, for the efficient clerk of works must first of all have been a builder's foreman. He was not there to advocate the cause of the theoretical young man who came from an architect's office with a bundle of drawings under his arm; he might understand the drawings and he was generally a very nice young man, but it was a misnomer to call him a clerk of works. No, give him the man who had "been through the hoop," who knew what he wanted and understood when he got it. With that sort of man they could bring a building to a successful issue.

Mr. J. Beer, Corresponding Secretary, in response, said that their members were very reluctant to place themselves on the pension list. The Institution had accumulated a reserve fund of 7,000*l.* It might be said that they had plenty of money, but it must not be forgotten that as they increased in numbers so they must increase their reserve fund. They hoped to be able to increase the pension from 17s. 6d. to 1*l.* in the near future. The Institution had done more for the builders' foremen and clerks of works than any other institution.

Mr. D. W. McInnes then proposed "The Architects and Surveyors." He congratulated the Institution on the support it had received from architects and surveyors. The architect could not do without the clerk of works and the builder without the foreman. It was well for the building trade of London that there existed so much unanimity between architects and surveyors and those who were more directly engaged in carrying out their work.

Mr. W. Gilbee Scott, who responded for the architects, said architects, builders' foremen, and clerks of works had very much in common. They were mutually dependent upon each other for the success of every work in which they were engaged. If they all had the feeling in their minds that they would do only good work, and if they would all deal fairly and honestly by each other, the good feeling which had always prevailed would continue, and they would hand down to posterity work of which they need not be ashamed. No one could appreciate more than an architect the benefit of such an institution as the builders' foremen's and architects wished them all the success they desired and deserved.

Mr. Guy M. Nicholson, who responded for the surveyors, said that the Chairman had told them he did not think much of the clerk of works who came from an architect's office. He (the speaker) did not think much, from what he had seen, of bills of quantities that came out of architects' offices. One he had seen was for a church. The question arose almost as soon as the church was started that there was only one centre taken for the arches of the nave arcade, and the builder naturally wanted more than one. The architect said that that was unreasonable; the one centre he had taken could be used over again for all the arches. The builder answered that that was so, but if the architect wished that to be done it would require about three years in which to do the building. That seemed to point to the fact that some training was necessary for the work of quantity surveying. It was generally found that people who thought there was very little in a business or profession were those who were outside it. If those who went to an architect instead of a surveyor for quantities did not regret it, the builder did. As to that Institution, with which he had every sympathy, he wished that the whole system of provident institutions was made a national affair. A man who met with misfortune in the discharge of his duties should be taken care of at the expense of the nation, especially when he was doing absolutely necessary work and was not paid sufficient to enable him to put by a reserve for future needs.

Mr. J. S. Gibson then proposed the toast of "The Builders and Contractors," coupled with the name of Mr. J. W. Lordon, Mayor of Wandsworth. Builders as a class existed long before architects. There was no doubt that when men began to gather together and form tribes and nations builders came into existence and erected those magnificent temples and palaces, the remains of which in some cases have lasted down to our day, and, in reading the history of the human race, it was largely through the lessons which these temples and their sculptures taught that we got an idea of the daily life and the history of the nation which erected them. Consequently, these works were the literature of the people of the time, and he trusted that that would be the case with present-day works. If builders and contractors would build honestly and well, future generations would read in our buildings the history of our time, and we should not be ashamed to hand on these monuments of honest endeavour to construct noble and beautiful buildings. Personally, he had always had the best and most amicable relations with builders and contractors, and no doubt this was a common experience.

Mr. Lorden, in the course of his response, said that there appeared to be a great many builders and contractors in London according to the London Directory, but names appeared in that work of many who, he supposed, had never built and never constructed. As to builders and contractors, it was rather a misnomer to call them by those names; more properly they should be called building contractors. As to the Institution, he regretted that more builders and contractors did not subscribe to its funds, for the Institute was doing a very good work, and it ought to be better supported by builders. He endorsed what had been said about the gentlemen who came out of an architect's office and called himself a clerk of works. It was absurd to think that such a man could carry out the duties of clerk of works in the way that a clerk of works could who had gained his experience as a foreman and had learnt how to deal with the men and just where to look for anything that might be wrong.

The list of subscriptions and donations to the funds of the Institution was then read. The total (including 25*l.* from the Chairman, 10*l.* 10s. from the Master Builders' Association, and 10*l.* 10s. from the Associated Portland Cement Manufacturers) amounted to 469*l.*

Mr. F. Hann, the Financial Secretary, then proposed "The Governors, Trustees, Donors, Subscribers, and Visitors." In the course of his remarks he said that this was a record year for the Institution. They had a record number of members, whose subscriptions totalled 30*l.* more than ever before; the amount paid in pensions last year was 40*l.* more than they had ever paid before (the amount paid was 468*l.*); there had been an increased number of builders' subscriptions, and that evening, thanks to the energy of the Chairman, the total amount of subscriptions just read was over 200*l.* more than ever had been subscribed before. It was pleasing to see so many builder and architect subscribers and that was what they wanted to see. Every builder and every architect who subscribed had the right to nominate a candidate for membership, and that candidate was sure of the support of the officers. They wished to increase their membership and make the Institution more useful.

Mr. F. J. Dove replied for the Governors and Trustees. He had been connected with the Institution for thirty years, and every year, he believed, there had been an increase in prosperity, but he thought that the increase this year eclipsed all previous advances.

Mr. J. C. Hill replied for the Visitors, and suggested that as the Institution had no life members it might be well to apply to builders and contractors of London to join as such.

The remaining toast was "The Chairman," proposed by Mr. W. J. Stapleton, Treasurer. Mr. Carmichael, he said, had risen from the ranks to his present position of one of the largest builders in London by his own energy, perseverance, and ability. He was a just, liberal, and appreciative employer, and in consequence of these qualities he had one of the most devoted staffs in London, many of whom had been with him ever since he commenced business.

BUILDING BY-LAWS REFORM ASSOCIATION.

THE second annual general meeting of the Building By-laws Reform Association was held at Grosvenor House (by kind permission of the President, the Duke of Westminster) on Monday, the 29th ult.

Among those present were Sir William Chance, Bart., Lord Hylton, Sir Edmund Verney, Messrs. Mark H. Judge, E. D. Till, J. Welford, Leonard Judge, E. J. May (and Son), Stephen Rowland, T. Myddelton Shallcross, R. W. Schultz, John Martineau, J. W. Shelley, W. G. Lewis, A. Newbold, Herbert A. Powell, A. H. Clough, S. M. Wilson, James Martin, Thackeray Turner, H. S. Storey, H. G. Willink, William Henman, etc. Letters of regret were read by the Hon. Secretary from the Duke of Westminster and others.

The minutes of the last meeting were read and adopted. The annual report was taken as read, and the Chairman moved the adoption of the report and stated that twelve Council meetings and nine Committee meetings had been held. He said that hard-and-fast building by-laws created hardship in many cases, and he invited members of the Association to forward their experiences with a view to their publication as a pamphlet, and he thought that, judging by his own experience, many people suffered themselves to be interfered with by

local authorities rather than incur the time, trouble, and expense of resisting them. By-laws had been promoted for the protection of the poor, and the old idea of one law for the rich and another for the poor had been reversed in the case of building by-laws to the great hardship of the rich. There should be an exemption clause in all by-laws, at least as affecting the parts of buildings above ground; there should be no interference with a private individual who erected property upon his own estate and apart from other buildings; and the man who provided gardens for his tenants should receive greater consideration than the man who did not do so.

Lord Hylton, in seconding the adoption of the report, said, as a landowner in more that one county, he had taken great interest in the Association. He had seen the deleterious effects of hard-and-fast building by-laws and the consequent restriction of the erection of labourers' cottages. He cited several instances where he had been interfered with by building authorities, and thought legislation was urgently required to relieve rural landowners from building restrictions upon their private estates.

Mr. T. Myddelton Shallcross regretted to be unable to support the adoption of the report, more especially as the lapse of time had lessened, to some extent, the original differences of opinion between the majority and minority of the Council as to the policy proper to be pursued by the Association. [In order to avoid digressions from the subjects in the report to which he desired to allude, Mr. Shallcross had placed his views in writing in a long communication, for which we cannot find space.] His two main objections were, first, the notice convening the last Council meeting was only delivered to the members of the Council two days before the meeting was held; that, owing to the shortness of notice, it was not possible for all the members of the Council to be present at that meeting; and the report had not, in consequence, been properly considered by the Council before being submitted to the general meeting. And, in the second place, that the work of the "By-laws Committee," as indicated by clauses (i), (ii), (iii) of the report submitted for adoption by the meeting, was not proceeding in accordance with the Articles of Association. He said that the Articles of Association distinctly stated the objects of the Association to be as follows:—

"(A) Where Building By-Laws or Regulations are in force, *to promote amendments so that official control of private buildings shall not extend beyond the demands of public health and safety, and thus to prevent encroachments on individual liberty;*

"(B) Where it is intended to adopt such By-laws and Regulations, to secure that those adopted shall satisfy the above conditions;

"(C) To assist as far as possible in suitable cases those who may be *unduly interfered with by Building By-laws and Regulations.*"

There appeared to be no differentiating between urban and rural building by-laws, and Mr. Shallcross went on to argue that the lines upon which it was stated in this report that a "By-laws Committee" was working in regard to "Rural By-laws" were not in accordance with the accepted policy of the Council, and that the Council had not assisted "as far as possible in suitable cases those who may be unduly interfered with by building by-laws and regulations." He moved that this report be not adopted, and that it be referred back to the Council for further consideration.

Sir Edmund Fernie seconded the amendment. He thought it very desirable there should be unanimity in the counsels of the Association, so that it should present a bold front and command the support of the public.

Mr. Mark Judge said the Council were all agreed, excepting Mr. Shallcross, and he thought the latter should have agreed with the majority of the Council, or have retired.

The Chairman then put the amendment to the meeting, and it was lost, and the report was subsequently carried.

The Chairman then submitted the following names as the Council for the ensuing year:—Sir William Chance, Bart., Mr. W. M. Acworth, Lord Robert Cecil, Mr. A. H. Clough, the Hon. John E. Cross, Mr. Anderson Graham, Mr. W. Henman, Mr. Mark H. Judge, Mr. E. L. Lutyens, Mr. Arthur Newbold, Dr. G. V. Poore, Mr. H. A. Powell, Mr. Lacy W. Ridge, Mr. R. W. Schultz, Mr. J. St. Loe Strachey, Mr. E. D. Till, Mr. Thackeray Turner, Mr. Christopher Turnor, Mr. H. G. Willink, and the Hon. Percy S. Wyndham.

Sir Edmund Fernie moved that the gentlemen named above be the Council for the ensuing year.

Mr. John Martineau seconded, and said the best building by-laws were no by-laws at all, and he thought that, when detached from other property, the buildings of rural landowners should be free from such restrictions.

Mr. H. S. Storey supported the election of the members proposed on the Council, and urged the great desirability of the Special Committee bringing their labours to an end as soon as possible, and making the principles of the Association known. All cottages built by a landowner on his estate for his own people should be free from by-laws.

Mr. James Martin spoke as a builder and a member of a district council, and said it was impossible to convince some district councillors of the disadvantages of hard-and-fast by-laws, and he thought there should be no by-laws enforced when an architect was looking after a building. The masses of the people ought to be educated to look to their own interests.

Mr. H. A. Powell said that local authorities could ignore their own by-laws, and that that was the best way out of the difficulty.

Mr. R. A. Read, the Hon. Secretary of the Association, thought the last speaker's advice was dangerous, as any ratepayer could obtain a *mandamus* from the King's Bench to compel the local authority to carry out their by-laws.

Mr. H. G. Willink agreed that it would be dangerous for local authorities to ignore their own by-laws. He thought there was something to be said for hard-and-fast by-laws, as it would be wise not to lose the support of medical officers of health; and these relied considerably upon hard-and-fast by-laws for the protection of small cottagers.

The Council, as proposed, was then elected.

The Chairman proposed, and Lord Hylton seconded, that the best thanks of the meeting be accorded to the Duke of Westminster for kindly placing Grosvenor House at the disposal of the Association, and it was carried ununimously.

Mr. H. G. Willink proposed, and Mr. T. Myddelton Shallcross seconded, a vote of thanks to the Chairman, and it was carried unanimously.

The Chairman returned thanks, and proposed a vote of thanks to the Hon. Secretary, Mr. R. A. Read, for his past year's work, and Mr. Thackeray Turner seconded it, and it was carried unanimously. Mr. Joseph Hurst was re-elected auditor.

The annual general meeting then dispersed, and a meeting of the new Council was subsequently held.

THE ENGINEERING STANDARDS COMMITTEE.

FROM a "statement of work now in progress" issued a few days ago by the Engineering Standards Committee we have prepared the following brief notes for the information of our readers.

Although comparatively few reports have as yet been actually published, an enormous amount of information and material has been collected, and a large number of specifications and findings are approaching the final stage.

The first report issued was that on "Standard Rolled Sections," and these sections, we are glad to learn, are slowly but surely finding their way into use throughout Government Departments, as well as in the general trade of the country.

A report to the Main Committee has been presented on a "Standard Specification for Steel used in Ships" by the committee dealing with iron and steel for ships, and this report is now being discussed by other committees. Professor Unwin's report on the work carried out by him for the same committee has already been noticed in our columns.

The Locomotive Committee has drawn up a report relative to standard types of locomotives for Indian railways, which is at present under the consideration of the Secretary of State for India. A Sub-committee on Locomotive Steel Plates has drawn up a draft specification, which has still to be considered by other sub-committees, and a Sub-committee on Copper and its Alloys has completed a standard specification for copper plates, rods, and tubes used in locomotives. This report will shortly be issued.

The Sub-committee on Railway Rails has prepared a series of standard sections and specifications, which is being discussed by the leading railway companies and engineers, and will be published at no distant date.

The report of the Sub-committee on Tramway Rails has already been published, and noticed in our columns.

A standard specification for telegraph and telephone wires has been drafted by the Sub-committee on Telegraph and Telephones, and standard lists of electric cables and wires represent part of the work done by the Sub-committee on Cables.

The calculations in connexion with standard beams have been completed by the Publications and Calculations Committee, and those for other sections will follow in due course.

Finally, we may mention that, in addition to the Main Committee, there are twelve sectional committees and eighteen sub-committees, the entire organisation including 192 members. From the large number of subjects under consideration, and the number of committees actually at work, some idea may be gathered of the far-reaching extent of the Committee's labours, and the importance of their findings to the industrial classes in this country.

THE LONDON COUNTY COUNCIL.

THE last meeting of the present London County Council was held on Tuesday, in the County Hall, Spring-gardens, S.W., Lord Monkswell, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend the Guardians of St. Olave's Union, 1,075*l.* for poor law purposes, and the Guardians of the Strand Union, 2,470*l.*; and the Guardians of St. George-in-the-East, 2,870*l.*, for similar purposes; the Metropolitan Asylum Managers, 100,000*l.*, for hospital re-construction and other work; and Camberwell Guardians, 3,000*l.* for compensation payments. Sanction was also given to Westminster City Council to a loan for 2,730*l.* for sewer works.

Tramways.—The following recommendations of the Highways Committee were agreed to:—

"That the estimate of 6,600*l.*, submitted by the Finance Committee, be approved; and that expenditure on capital account of sums not exceeding that amount in all, be authorised in respect of the reconstruction, as double lines, for the underground conduit system of electrical traction, of the existing single line of tramways in Goswell-road, between Clerkenwell-road and Upper Ashby-street, under the powers conferred by the London County Tramways Act, 1900.

"That the estimate of 6,209*l.* submitted by the Finance Committee, be approved; that consent be given to the widening of Streatham High-road between Mount Ephraim-road and the Tate Library, proposed to be undertaken by the Council of the Metropolitan Borough of Wandsworth in accordance with the plan presented to the Improvements Committee on February 17, 1904; that a contribution be made on the usual conditions of two-thirds of the net cost of the improvement on the understanding that one-half of the Council's contribution will be charged to the tramways account, the remaining half being charged to the account of the improvement."

Theatre Safety.—The Theatres and Music-halls Committee brought up the following report:—

"We have given special consideration recently to the question of the precautions that should be adopted in premises licensed for public entertainments, in order to minimise as far as possible the risk of fire or panic, and we are of opinion that it would be well to make certain additions to the existing rules. The Lord Chamberlain is quite in accord with us in these suggestions, and we recommend:—

"(a) That the undermentioned rules be incorporated with those now in force in respect of premises licensed by the Council for public entertainments:—

"(1) All exit doors must be thrown open for the use of the audience at the end of the performance.

"(2) Persons must not be permitted to stand or sit in any of the gangways.

"(3) Overcrowding must not be permitted in any part of the premises.

"(4) Each exit door from the auditorium and stage must have a distinctive light fitted over it, such light to illuminate the exit notice, and to be maintained throughout the performance.

"(5) All exit doors must have a notice clearly painted on them indicating the method of opening them.

"(6) Where practicable broad conspicuous lines at shoulder level, with frequent arrows indicating the way out, must be painted on the walls in all the corridors and exits leading to the street.

"(7) The seating area assigned to each person must not be less than 2 ft. deep and 1 ft. 6 in. wide. in all parts of the house where no backs or arms are provided to the seats, and not less than 2 ft. 4 in. deep by 1 ft. 8 in. wide where backs or arms are provided. In all cases, however, there must be a space of at least 1 ft. in depth between the front of one seat and the back of the next, measured between perpendiculars.

"(8) All check boxes must be recessed or removed.

"(9) Where there is a fire-resisting screen to the proscenium opening it must be lowered at least once about the middle of the performance in the presence of the audience so as to ensure its being in proper working order.

"(10) An inscription of the following nature must be exhibited on the fire curtain—'Safety Curtain.' The notice to be exhibited in sufficiently large letters that it can be read from all parts of the house.

"(11) Whenever the curtain is lowered, all lights in the auditorium, which are not controlled from the stage switch-board, must be lighted.

"(12) No wires, &c., in connexion with gymnastic or other displays, or any other apparatus must be allowed to interfere in any way with the lowering of the fire curtain.

"(13) All scenery, wings, sky borders, cloths, draperies gauze cloths, floral decorations, properties, hangings, curtains, &c., whether on the stage, in the auditorium, or in other parts of the premises, must be rendered and maintained non-inflammable.

"(14) Where performances are regularly given and where scenery is used, at least one fireman must be employed during the entertainment. The responsibility as regards the employment of such men must rest as at present with the management.

"(15) A sufficient number of employeés must have definite duties allotted to them in the event of fire or panic, and statements of such duties must be posted up in conspicuous positions. Fire drills must be held at least once a week in all theatres, music-halls, and large concert halls.

"(16) Smoking by members of the orchestra or others must be strictly prohibited within the stage risk.

"(17) Drugget or crumb cloths where used must be secured so as to be in no way liable to rucking or to be in any way a source of danger to members of the audience.

"(18) Smoking must not be permitted in the auditorium, if the premises are used for dramatic entertainments.

"(19) Where there is an electrical installation a properly qualified man must be in charge of such installation.

"(20) In all cases in which it is desired to instal temporary lighting, notice must be given to the clerk of the Council, in writing, as long as possible before it is desired to commence the work.

"Wires and cables must be adequately and firmly fixed, and must be similar to the wires specified in the Council's regulations, and in all cases where the wires are within reach of the public, they must be cased.

"All joints must be soldered and taped if used for more than one week, and if used less than a week the wire must be soldered, if larger than 720 S.W.G. or its equivalent. In either case the joints must be taped.

"The circuits must be sub-divided as much as possible, no sub-circuit exceeding 10 ampéres.

"All temporary work must be immediately removed when no longer required for the purpose for which it was installed.

"In the case of temporary work on the stage, all connexions to the permanent installation must be removed immediately after each performance in which they are used, unless permission be obtained to the contrary.

"Such special conditions as may be requisite in each case will be attached to the consent of the Council to the use of temporary electrical work.

"(21) All main switches, fuses, &c., which are the property of the electric supply company, shall be distinguished by being coloured red with a white band.

"(22) At least one pair of india-rubber gloves must be provided for the use of the electricians in connexion with the electric lighting arrangements as a precaution in the event of high voltage occurring. The gloves must be kept on the stage switch-board and be kept in good order.

"(23) At least one bucket, filled with dry sand, must be kept in some accessible position on the stage in readiness for use in dealing with an electric fire, and one must also be kept in each of the intake rooms.

"(24) Communication must be established between a point on the stage, in close proximity to the releasing gear to the fire curtain and the telephone alarm in connexion with the nearest fire-brigade station.

(*b*) That, Nos. 1, 2, 3, 9 and 18, of the above-mentioned rules, and No. 7 of the present rules, which is to the effect that the corridors must not be used as cloak rooms, and no pegs for hanging hats and cloaks shall be allowed therein, be printed in block type on all programmes, on the same page as the caste, for the information of the public, and that Nos. 9, 11, 12, 13, 16, 22, 23 and 24 of the above-mentioned rules, be posted up on each side of the stage behind the fire-curtain, where there is such a curtain, in addition to, or in amendment of those required to be so printed and posted up by resolution of the Council, dated 22nd and 29th July, 1902.

(*c*) That, subject to recommendation (*a*) being adopted, a copy of the rules, as altered, be sent to the licensees of all places licensed by the Council for public entertainments.

Mr. Foster moved that the report be referred back in order to allow architects and others to consider the various recommendations.

Sir A. West, Chairman of the Committee, said he could not withdraw the rules, which were in the interests of the safety of the public.

The recommendations were then adopted.

Asylums.—The following recommendations of the Asylums Committee were agreed to:—

"That the estimate of 1,000*l.*, submitted by the Finance Committee, be approved; and that expenditure not exceeding that amount be authorised for the preparation of plans, etc., of permanent buildings at the Banstead Asylum, to accommodate 300 male patients and the necessary staff in lieu of the existing temporary buildings.

"That the estimate of 1,500*l.*, submitted by the Finance Committee, be approved; and that expenditure not exceeding that amount be authorised for the preparation of plans, &c., of permanent buildings at the Colney Hatch Asylum to accommodate 310 patients and the necessary staff in the place of the temporary buildings recently destroyed by fire.

The Recent City Fire.—Captain Hemphill, Chairman of the Building Act Committee, in replying to questions on the recent fatal fire in Duke's Head-passage, Paternoster-square, said the Council had no power under the London Building Act to prevent the re-erection or alteration of buildings in narrow courts unless they happened to be dwellings for the working-classes, provided that the buildings existed before the passing of the Act of 1894. In this area there were a large number of *culs de sac*, and the Council had no power or control over them in the City, because the City had special exemptions under the Building Act. This unfortunate fire illustrated the urgent necessity for an amendment in the Building Act. No matter how good, able, or efficient the Fire Brigade might be, it was impossible to save life unless the buildings were properly constructed.

Mr. Burns: Will the Chairman of the Committee consider the necessity of recommending to the Common Council the desirability of having the posts at the entrances to these narrow passages placed upon hinges?

Captain Hemphill: The committee will undoubtedly do that.

Fire Station, Isle of Dogs.—The Fire Brigade Committee recommended, and it was agreed:—

"That expenditure not exceeding 11,300*l.* be authorsied for the work of erecting a new fire-station in substitution for the existing Isle of Dogs station; that the work be executed by the Council without the intervention of a contractor; and that the drawings, quantities, specification, and estimate be referred to the Works Committee for that purpose."

Question of Tender.—At a previous meeting a report was presented by the Highways Committee recommending that the tender of Messrs. W. Griffiths and Co., Ltd., London, should be accepted, at the sum of 86,623*l.*, for the reconstruction for electrical traction of the Streatham cable tramway and construction of authorised tramways at Tooting. The recommendation was adjourned, on the application of the chairman of the committee, and a revised report was now brought up with the recommendation that the tender of Messrs. J. G. White and Co., Ltd., London, at the price of 95,005*l.*, should be accepted. The full list of tenders was given in our last issue, page 240.

A long discussion took place as to the change recommended, but an amendment to refer the matter back was defeated, and the recommendation of the committee was adopted.

Model Dwellings.—The Housing of the Working Classes Committee reported that in the Council's model dwellings on the Boundary-street estate the annual death-rate for 1903 was 12.7 per 1,000, as compared with 18.2 in Bethnal Green; and that taking the whole of the Council's dwellings the death-rate was 11.8, as against 15.2 in London as a whole.

Sir W. Collins said it was one of the most encouraging results of the Council's work that so many fever-laden slum districts had been converted into healthy residences.

Islington War Memorial.—On the recommendation of the Parks and Open Spaces Committee, permission was granted to the Islington Borough Council to erect on Highbury-fields a memorial to Islingtonians who lost their lives in or as a result of the South African War.

Refreshment House, &c., Hackney Marsh.—The same committee recommended, and it was agreed:—

"That the estimate of 2,205*l.*, submitted by the Finance Committee, be approved, and that expenditure not exceeding that amount be authorised for the erection of a composite building at Hackney Marsh to provide the following accommodation—refreshment-room, cart-shed, bothy, dressing-room, conveniences, and store; and that tenders be invited for the erection of the building."

Hainault Forest.—They also recommended, and it was agreed:—

"That the estimate of 1,500*l.*, submitted by the Finance Committee, be approved; and that expenditure not exceeding that amount be authorised in connexion with the laying out and planting of the farmed land at Hainault-forest."

Technical Institute, Hammersmith.—On the recommendation of the Technical Education Board, it was agreed that the estimate of 5,800*l.* be approved; and that the site, belonging to the Latymer Trustees, in Lime-grove, Hammersmith, be purchased by the Council for a sum not exceeding that amount, including the legal and other expenses connected with the purchase; that the site be appropriated for the purposes of technical education within the provisions of the Technical Instruction Acts; and that the purchase money and other expenses connected with the purchase be paid out of capital account.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Lewisham.—Wooden overhanging eaves and barge boards and projecting wood and slate pents to nine houses on the south-west side of Ewhurst-street, Lewisham, between Bexhill-road and Salehurst-road (Mr. T. W. H. Standen).—Consent.

Brixton.—A building on the south side of Southesk-street, Stockwell (Mr. W. S. Huxley for Messrs. Hammerton and Co.).—Consent.

Hackney, Central.—A one-story shop upon part of the forecourt of No. 253, Mare-street, Hackney (Mr. H. P. Monckton for the Pearl Life Assurance Company, Ltd.).—Consent.

Hackney, North.—An addition on the eastern side of St. Anne's House, Manor-road, Stoke Newington (Mr. E. Goldie).—Consent.

Strand.—Projecting balconies at the Savoy Hotel extensions to abut upon the Strand, Savoy-court, and Savoy-buildings (Messrs. Collcutt and Hamp).—Consent.

Woolwich.—That the application of Mr. H. O. Thomas for an extension of the period within which the erection of houses on the east and west sides of Back-lane, Artillery-place, Woolwich, was required to be commenced, be granted.—Agreed.

Strand.—Iron and glass shelters at east and west blocks of the Savoy Hotel extensions, Savoy-court, Strand (Messrs. Collcutt and Hamp).—Refused

Lines of Frontage and Space at Rear.

Hackney, South.—A building on the north side of Atherden-road, Clapton, between Rushmore-road and Alfearn-road (Mr. C. W. Hodgson for Mr. H. Pyle).—Refused.

Width of Way.

City.—Retention of a building on the site of St. Michael Bassishaw Church, Basinghall-street, City, with external walls at less than the prescribed distance from the centre of the roadway of Church-alley (Mr. R. M. Roe).—Consent.

Formation of Streets.

Woolwich.—Deviation from the plan sanctioned for the formation of a street to lead from Macoma-road to Ennis-road, Plumstead, so far as relates to an alteration in the gradient of such new street (Mr. J. O. Cook).—Consent.

Wandsworth.†—That an order be issued to Mr. G. A. Hall sanctioning the formation or laying-out of a new street for carriage traffic to lead from Streatham-common North, to Deepdene-road, and the widening in connexion therewith of portions of Deepdene-road and Streatham-common North (for Messrs. Thynne and Thynne).—Consent.

Woolwich.—That an order be issued to Mr. F. Bethell sanctioning the formation or laying-out of a new street for carriage traffic to lead from Bostall-hill to McLeod-road, Plumstead (for the Royal Arsenal Co-operative Society, Limited).—Consent.

Chelsea.†—That an order be issued to Mr. G. D. Martin refusing to sanction the formation or layin-out of a street for foot traffic only to lead from Brompton-road to Basil-street, Chelsea (for Mr. D. H. Evans).—Refused.

Battersea.—That an order be issued to Mr. W. A. Large, refusing to sanction the formation or laying-out of two streets at the rear of proposed buildings on the east side of St. John's-road, between Battersea-rise and Beauchamp-road, Battersea (for Messrs. Jones Brothers).—Refused

Wandsworth.—That an order be issued to Mr. W. Bartholomew refusing to anction the formation or laying-out for carriage traffic of a new street in continuation of Vants-road, Tooting, and of a new street on land adjoining northward.—Refused.

Cubical Extent.

Southwark, West.—The erection at Mansfield-street, Borough, of an addition to a building exceeding in extent 250,000, but not 450,000 cub. ft., and used only for the purposes of the manufacture of printing machines (Messrs. R. Hoe and Co.).—Consent.

Southwark, West.—The erection on the east

side of Hatfield-street, Southwark, of a building with two divisions, each to exceed in extent 250,000, but not 450,000 cub. ft., and to be used only for the purposes of the trade of lithography and printing (Mr. F. Matcham for Messrs. Hudson and Kearns).—Consent.

Buildings for the Supply of Electricity.

Whitechapel.—Additions to a generating-station and works at Osborn-street, Whitechapel (Mr. W. Jameson for the Metropolitan Borough of Stepney).—Consent.

The recommendations marked † are contrary to the views of the local authority.

ARCHITECTURAL SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—At the meeting on the 25th ult., Mr. Butler Wilson presiding, a paper entitled "The Romanesque Churches of Auvergne" was read by Mr. W. H. Bidlake. The lecturer observed that France, during the period when the Romanesque style was in vogue, might be regarded as having comprised several architectural districts, and of these none was more distinct than that of Auvergne. The chief interest in these buildings lay in the intermediate position they occupied between the ancient Roman buildings in the South of France and the fully-developed Gothic cathedrals of the North. The paper was illustrated by many fine lantern views.

SHEFFIELD SOCIETY OF ARCHITECTS.—"Sir Christopher Wren: His Times and Works," formed the subject of a lecture by Mr. J. B. Mitchell-Withers, at a meeting of the Sheffield Society of Architects and Surveyors, held at their rooms, Leopold-street, on the 25th ult. Having made a few opening remarks, the lecturer proceeded to speak of the personality of Sir Christopher Wren, referring to his distinguished ancestry and the early development of his powers of thought, showing that at an early age his scientific knowledge and abilities brought him into prominence, and that, in addition to a liberal education, he had had the advantage of mixing with many of the great thinkers of his day, both at the meetings of the Royal Society and elsewhere, thus being fitted to take up the work that fell to his lot shortly after the Restoration, when he was appointed assistant to the Surveyor-General by King Charles II. In reference to his architectural education, while little was known of this previous to his studies in France about the time of the Great Plague in London, the lecturer stated that it would seem probable that Wren had some general knowledge of the subject, as his father had been employed while Dean of Windsor to design buildings for his Queen, and that we find Wren employed by his uncle, the Bishop of Ely, on buildings at Pembroke College, Cambridge, and that he was also employed to design the Sheldonian Theatre at Oxford, besides having to report, in his capacity as surveyor, on the state of Salisbury Cathedral and old St. Paul's, London; and that he had the knowledge which enabled him to criticise the faulty construction which he found in these buildings. After referring to Wren's studies in France, he proceeded to refer to the history of the times, both general and architectural, in an endeavour to show that Sir Christopher Wren had had many difficulties to face when he was called, after the great fire in London, to take up the works in the city required in its reconstruction, and in the rebuilding of those edifices entrusted to his special care. The lecturer then proceeded to refer to various illustrations of St. Paul's Cathedral, showing the designs Wren originally submitted to the King and those afterwards submitted, from which the present Cathedral was built. He then showed illustrations of some of Wren's city churches, and spoke of the difficulties the architect had to face in building these, and of the way he had apparently endeavoured to make them group with his great Cathedral, and how their towers and spires still afforded a relief to the monotony of the buildings erected for commercial purposes. On the motion of Mr. F. Barker, seconded by Mr. C. F. Innocent, and supported by Messrs. W. J. Hall, E. M. Gibbs, W. G. Buck, and others, a vote of thanks was accorded to the lecturer.

GLASGOW ARCHITECTURAL ASSOCIATION.—The eighth ordinary meeting of the Session was held on Tuesday, 27th ult., Mr. W. J. Blain, President, in the chair, when a paper, illustrated by lantern slides, on "Byzantine Architecture" was read by Mr. Alexander McGibbon. The current interest in the style among architects—largely due to its adoption for the Westminster Cathedral—was the essayist's justification of the analysis and appraisement offered. Though beyond any likely gain in the way of addition to stock-in-trade features, the inherent worth of many of its motives and methods, æsthetic and constructional, should command attention. Extravagant claims had been advanced for its present-day applicability, and unwisely, for its limitations were evident. As mediæval Greek it had what we should expect, an excellence of ornament, distinct from that of Western Roman both in design and execution, and there was a special treatment given to the column and capital; but beyond the developments, not origination, of the pendentive dome, and the superseding of marble by glass mosaic, there was little of real invention. It was noteworthy that the undesirable merits of the style in decoration, architectural design, and constructive ingenuity were coincident with degeneracy in other arts; sculpture and figure drawing were of the poorest. The principal historical examples were passed in review. Subsequently Mr. James Lochhead discussed some of the points before proposing a vote of thanks.

Correspondence.

QUANTITY SURVEYORS AND THE SURVEYORS' INSTITUTION.

SIR,—Mr. Deacon's well-meant remarks made at the dinner of the Clerks of Works' Association, as reported in your issue of last week, convey the impression that the memorial about to be presented to the Council of the Surveyors' Institution is being sent on behalf of "a small body" of quantity surveyors. Will you kindly give me the opportunity of stating that the memorial has been signed by practically all the leading London quantity surveyors, as well as by many others of repute both in London and in the provinces, and there are still a large number who are waiting the opportunity to sign. The document, therefore, may be fairly claimed to represent the views of the profession, and not merely a small section of it. The adoption of our suggestions will make the Institution as representative of the quantity surveyor as any reasonably-minded man could wish, and will, it is believed, lead to a binding together of the profession, and an improvement in its status which cannot fail to be of advantage both to the members of the profession and to all those with whom they are brought into contact, by placing them, their work, and all that relates to it on a firm and satisfactory basis.

There may be one or two quantity surveyors members of the Institution who, from oversight, have been as yet uninvited to sign the memorial. Should there be any who do not hear from me in the course of the next few days, I shall be pleased to afford them the opportunity of signing if they will write to me.

Personally, I hope to see, in the near future, arrangements made by which those few old-established quantity surveyors of undoubted standing, and whose qualifications admit of no question, may be admitted to the membership of the Institution without the (in their case) unnecessary ordeal of examination, which, on account of their age, prevents many otherwise most eligible men from being elected.

HARRY G. ASSITER.

9, John-street, Adelphi.

Books.

The Cathedral Church of St. Patrick, Dublin. By J. H. BERNARD, D.D., Dean of St. Patrick's. London: George Bell and Sons. 1903.

TO THE readers of this interesting addition to Messrs. Bell's Series of Cathedrals the feeling uppermost will probably be one of surprise that so much of the mediæval cathedral church of St. Patrick's has been spared. After a long series of misfortunes, and years of neglect, added to which was a naturally treacherous foundation, the building had suffered terribly; but within the last forty years, thanks chiefly to the munificence of the late Sir Benjamin Guinness and Lord Iveagh, it has been made safe and more worthy of its place as the Metropolitan Cathedral of Ireland. Much has also been done to improve the immediate surroundings, particularly on the north side, and the building is now isolated and can be well seen from almost all points. The chief architectural interest is in the work of the choir and presbytery, which is good XIIIth century work. The Lady Chapel was rebuilt by Carpenter, and more recently considerable repairs have been done in the nave and porches added on its north and south sides. The banners of the Knights of St. Patrick hang over the choir stalls, and the new organ chamber recently added on the north side at the triforium level forms a pleasing feature in the exterior views, and is approached by a spiral staircase in the north transept—both being from the designs of Sir Thomas Drew.

All these points are very fully and well illustrated in the book, and a number of reproductions of views are also given showing the condition of the church in the latter part of the XVIIIth and beginning of the XIXth centuries. One of these of earlier date (1733), showing the tower without its stone spire—an addition made in 1749 to Archbishop Minot's work—is particularly interesting. Three plans are given, one of the precincts, one from Kendrick's "Survey," showing the cathedral arrangement in 1754, and a third at the end of the book, showing roughly its present state. This plan, however, would have been more valuable had it had the dates of the various parts of the building clearly marked on it. Of the monuments, few in number, that remain, two interesting brasses to Deans Sutton and Fyche are illustrated, and on page 63 is an excellent photograph of the bust of Swift, who lies buried in the nave. A list of the deans is given from the early years of the XIIIth century to the present time.

Free-hand Lettering: Being a Treatise on Plain Lettering for Use in Engineering Schools and Colleges. By VICTOR T. WILSON. London: Chapman and Hall. 1903.

THIS is a book by an American author, published in the first instance by Messrs. Wiley, of New York, and is rather amusing in the solemn and detailed directions which are given to insure success in a kind of work which in reality only requires a little common-sense and care, coupled with the power of clean draughtsmanship. For the book has little or nothing to do with artistic lettering in the true sense of the word; it aims at promoting nothing more than the neat lettering of engineering plans, though there is a passing reference to the fact that architects do (on occasion) aim at more artistic design than is contemplated in this book. Indeed, Mr. Wilson does not seem awake to the fact that most of the types of plain capitals of the Renaissance period are no more complicated and a great deal finer in line and proportion than what he calls "modern Roman large." It is amusing, also, to find that the very simplest form of capitals, what are usually called here "block letters," are catalogued by an American writer as "modern Gothic," while of the picturesque mediæval characters which we call Gothic no mention is made and no illustration given.

However, for those who require so much instruction in the simple art of lettering, the instructions are mostly quite sound, with the exception of the terrible Plate XX. of examples of the "ornamental" style of lettering supposed to be suitable for advertisements. These are no worse than what one constantly sees in advertisement and trade headings, but to see them deliberately put in a book as examples does give one rather a shudder. The examples of ordinary lettering, however, are good, and fit for their purpose, and the instructions for setting out lettering are quite to the point—only we cannot understand anyone really requiring instruction on such very obvious matters.

The Planning and Fitting-up of Chemical and Physical Laboratories. By T. H. RUSSELL, M.A. London: B. T. Batsford. 1903.

NOW THAT this country is at last waking up to the importance of science, the practical outcome of which is a large increase in the number of laboratories available for scientific work, we may well predict success for a book giving sound information on the subjects included in the above title.

Neatly bound, well printed upon good paper (features which one justly associates with Messrs. Batsford's publications), the book lacks nothing material to make it attractive, and the contents will not be found to belie the appearance. The first eighty-seven pages are devoted to chemical laboratories. Several plans are given showing the accommodation

necessary in varying circumstances, and these are followed by a detailed description of the fittings required, aided by several drawings to scale. Chemical benches for students, lecture tables, draught closets, shelves, etc., are carefully dealt with, but we should like to have seen an attempt to discuss the requirements of some of the special branches of the subjects; metallurgical laboratories, special arrangements for organic work, and for the physical branches of chemistry, for example, are dismissed by the author in a few lines, but perhaps limitations, to the size of the volume, has prevented us from benefitting by his experience in these matters. The drainage of a chemical laboratory, so often on a first floor, is another point upon which both builder and architect would often desire more advice than is given in the book.

Pages 88 to 116 are, in a similar way, devoted to Physical Laboratories. The author excludes iron and steel from such laboratories, and where advanced work in magnetism and electricity is contemplated, this is very proper; we do not, however, think it is always necessary, and it would in many cases involve much additional expense in construction. The fittings of a physical laboratory are of a much simpler character than those for chemical work, and this section might have been amplified by some suggestions for suitable wiring, for the supply of current to working benches, transformers, and simple mercury and other switch boards. These are points upon which the profession and the building trades are usually very little informed, and which must be specified for the electricians for this class of work.

The next forty pages of the book give a useful *resumé* of the subjects of ventilation, warming, and lighting, and the volume concludes with the appendices of the Board of Education relating to science teaching.

We think this book, which stands almost alone in the field, will prove of no little service to those who are interested in this important and growing subject.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price Book for 1904. Edited by FRANCIS T. W. MILLER, A.R.I.B.A. London: Crosby, Lockwood and Son, 7, Stationer's Hall-court. 1904.

As the Editor remarks in the preface, "the past year has not been a very eventful one in the building trade," consequently he has few variations to note upon the previous edition. Probably owing to the slackness of trade, prices have generally ruled somewhat lower due to the keener competition. This dropping of prices, however, cannot be considered permanent, so that the Editor cannot be blamed for keeping to those generally of 1903. The tendency of price books of a few years ago was to put the prices so much above current rates, as to make them almost useless as works of reference, unless a general discount was agreed upon at the outset; but in the present instance, if any fault is to be found, it is that in some instances they are somewhat lower, particularly in Joiner's Work.

In a work such as this we would rather not see recommendations of special firms, with a reference to the advertisement pages, for the class of work not confined to any particular firm (*vide* p. 321). In the case of specialities, this objection does not apply, but the quotations would be more reliable if the net prices were quoted rather than the list prices. This, of course, opens up the much vexed question of trade discounts, a subject upon which, from the architect's point of view, there ought to be no question. The supplement, which, as heretofore, forms an important proportion of the work, has been revised to date, and thus maintains its usefulness. To sum up, it only remains to be said that the work maintains the high standard of usefulness it has reached during the past few years.

Laxton's Builder's Price Book for 1904. Originally compiled by WILLIAM LAXTON. Eighty-seventh Edition. London: Printed and Published by Kelly's Directories Limited, 182, 183, and 184, High Holborn, W.C.

AN annual publication that has arrived at its eighty-seventh edition, must of necessity merit some degree of respect if only that due to age. The unfortunate thing about most works of so many years existence, is that we have the same old facts dished up year after year in exactly the same form, so that frequently the date is about the only variation from former editions. In the case of "Laxton," happily this objection does not exist, as for some years now a conscientious revision and amplification has taken place, which enables it, notwithstanding the serious rivalry of newer works, to take a high position in the world of price books. One section, in particular, has been brought up-to-date—*i.e.*, "Constructional Engineer," an extremely important one in these days of steel construction. In the present work this has been dealt with most completely, and the new list of standard sections of rolled steel joists, issued last year by the Engineering Standards Committee, will save a good deal of the trouble caused by the variations of sections rolled by the different firms. The paragraphs on "Cutting to fixed lengths," "Rolling margin," and "Economic sections" well deserve study.

In this work, also, the prices of some of the joinery work strike us as somewhat low.

Why will the Editor still perpetuate the erroneous "example," on page 45, which has remained the same, notwithstanding that the rate of wages has risen from 9½d. to 10d., and from 10d. to 10½d., and to which we have before drawn attention. As we understand it, instead of reading "*add* one-nineteenth (or, say, 5¼ per cent.)," it should be "*deduct* one-twenty-first (or, say, 4¾ per cent.)" to bring the rate down to 10d. per hour. A small point certainly, but if given at all it should be given correctly.

This work, nevertheless, keeps up its character of excellence, and is a good example of the benefit of healthy competition.

Proceedings of the Incorporated Association of Municipal and County Engineers, 1902-3. Edited by THOMAS COLE, A.M.Inst.C.E. London: E. and F. N. Spon, Limited. 1903.

THIS year-book contains, as usual, a large amount of useful information, chiefly relating to municipal works in various cities and towns. There are, however, reports of several papers which should be of interest to our readers. Among such, we may mention one upon "Wooden Structures and the Powers of Metropolitan Borough Councils with Respect thereto," by Mr. J. Patten Barber, M.Inst.C.E. The first points for consideration by a municipal engineer in connexion with applications relative to the erection of wooden structures generally, are danger from fire and from the loads which the structures will have to sustain. The author points out that persons applying for licenses do not appear to realise the responsibilities resting upon borough councils and engineers, and he also shows that much difficulty has arisen in the past owing to the imperfect condition of legislation on the subject under consideration. The intricacies of the London Building Act, 1894, are so thoroughly recognised that the author hopes his views "will be received as impressions rather than regarded as dogmatic opinions." As our readers are aware, there is no definition in the Building Act either of a "building" or a "structure," and unless a building is a structure, no borough council can issue a license for the erection of a wooden building. It has indeed been suggested that such bodies have no jurisdiction in the case of wooden buildings, and that their powers relate only to wooden structures. Even when a licence has been obtained from a Borough Council, the builder must give notice to the District Surveyor, who has power to act without consulting the council in any way. Owing to anomalies of this kind, enumerated by Mr. Barber, it seems that builders are subjected to a considerable amount of unnecessary trouble and expense, and we quite agree with the author that the present condition of things is highly unsatisfactory.

Another paper of great practical value is that on "Minimising the Risk of Fire in Temporary Buildings," by Mr. T. W. Aldwinkle. This communication deals almost entirely with temporary hospital buildings. Having briefly described the usual construction of such buildings, Mr. Aldwinkle considers the steps that should be taken to minimise the risk of fire, both in existing buildings and in those to be erected in the future. He devotes attention chiefly to a consideration of the means most suitable for preventing the spread of flame in a given building, or from one building to another. All the suggestions made in this paper are good, but they do not include any points with which architects are not perfectly familiar. It may be regretted that the paper was not extended so as to include various temporary structures, other than hospital buildings, erected in all parts of the country by local authorities and private individuals.

The Year's Art, 1904. Compiled by A. C. R. CARTER. London: Hutchinson and Co. 1904.

THIS useful publication keeps up its old form in the hands of the same editor, but of new publishers. It includes an artist's calendar and diary; a directory of artists; full information as to Art Institutions in England and abroad; a list of fine art dealers in the United Kingdom, and much other information useful to artists. The Editor writes a review of the art of the past year, and Mr. H. H. Statham a special article on "Architecture in 1903." A portrait of Mr. Sargent forms the frontispiece to the volume, which also includes among its illustrations a portrait of Mr. Carter, the Editor, from a painting by Mr. Ellis Roberts exhibited at the Society of Portrait Painters.

BOOKS RECEIVED.

HOW TO JUDGE ARCHITECTURE. By Russell Sturgis. (Macmillan and Co. 6s.)

A HANDBOOK OF TECHNICAL TERMS USED IN ARCHITECTURE AND BUILDING. By Augustine C. Passmore. (Scott, Greenwood, and Co.)

ANCIENT AND MODERN FURNITURE. By John W. Small, F.S.A.Scot. (Eneas Mackay, Stirling.)

THE MUNICIPAL YEAR-BOOK OF THE UNITED KINGDOM FOR 1904. Edited by Robert Donald. (Edward Lloyd.)

THE NORTHAMPTON INSTITUTE.

ON Friday evening last week the prizes and certificates awarded during the session 1902-1903 to students at the Northampton Institute were distributed by Lord Kelvin. Mr. L. B. Sebastian, Chairman of the governing body, presided.

Dr. R. Mullineux Walmsley (the Principal) in his report on the work of the session said that the very specialised work of the Institute did not lend itself well to brilliant results in outside examinations and competitions, but the successes obtained both in examinations and competitions were very gratifying. In the examinations of the City and Guilds of London Institute a number of medals and prizes were obtained, and in the open competitions for the London County Council's scholarships in artistic crafts work fourteen exhibitions and scholarships were obtained as against eight in the preceding year. The Electrical Engineering Department still continued to attract the greater number of students. The laboratories, workshops, and lecture-rooms were overcrowded, and a great number of students had to be refused admission. Additional accommodation was, therefore, very urgently required.

Lord Kelvin said that the existence of this Institute was a splendid example of the truth that good deeds are everlasting. The benefactions of 500 and 600 years ago and of the intervening centuries had been turned to account in these days in a manner that he felt sure would have received the approval of those who left the money, could they have foreseen to what purposes their gifts would be applied. He was told that the Northampton Institute received 4,500*l.* towards its support from the City Parochial Foundation That body had two objects—the preservation of open spaces, and the maintenance and extension of education. He believed that the Technical Education Board of the London County Council was the largest contributor to the funds of the Institute. It gave 16,000*l.* towards the building and equipment of the Institute, and made an annual grant of 3,000*l.* The opportunity had been afforded him that evening of inspecting the Electrical Engineering Department of the Institute, and he had been greatly struck with the splendid arrangements they had for imparting scientific instruction to students in the most practical form. The scientific aspects of the Institute's work were most interesting to him. When they thought of the great discoveries of Faraday in England and of Henry in America, and the succession of workers from their time to the present day who had added so much to our knowledge, they could not help being struck with the enormous progress which science had made within a comparatively short period, and perhaps that progress had been even more remarkable and striking at the beginning of

the XXth century than during the whole of the XIXth Century. Many of these discoveries were for the moment in the realm of pure science, presenting no prospect of practical application; but what was to be thought of a scientific investigator who only looked for an immediate practical application of the result of his labours? The electrical discoveries of Faraday and Henry would never have been made if those great men had contented themselves with asking who will benefit by them. Even at the Northampton Institute he trusted that at least part of the object of the instruction was to give happiness to those who were learning and to give them some insight into the laws of nature. He believed that the everyday workman would be all the happier for knowing something of the laws of nature developed in the work he was called upon to perform. The habit of mind of thinking scientifically and bringing scientific knowledge to bear on the practical work of life would not only contribute to the work being well done, but would largely contribute to the richness and mental wealth of the work. He trusted that the students would learn a good deal at the Institute which would remain with them and be a valuable possession to them as long as they lived.

On the motion of Sir William White, seconded by Mr. James Gavey, a vote of thanks was passed to Lord Kelvin, and, a vote of thanks having been passed to the Chairman for presiding, the visitors were invited to inspect the laboratories and workshops, where specimens of the students' work were shown and demonstrations of the methods employed were given.

ROYAL COMMISSION ON LONDON LOCOMOTION.

AT the sitting of this Commission at the Westminster Palace Hotel last week, evidence was given by the Right Hon. J. W. Lowther, M.P., Chairman of the Committee of Ways and Means in the House of Commons, who explained the procedure taken with regard to private Bills. He did not believe that Parliament would ever consent to hand over to an entirely independent tribunal the ultimate decision and control of such important matters as the routes, etc., of tube railways, nor did he think that important companies, capitalists, or public bodies would be satisfied with anything less than a Parliamentary decision. There were several objections to any tribunal laying down a general scheme for meeting traffic requirements. The work of evolving such a scheme would involve engineering and financial investigations of vast magnitude, and entail a huge staff of highly-paid experts, engineers, legal advisers, electricians, draughtsmen, geologists, and clerks.

Mr. J. L. Pound, Chairman of the London Omnibus Owners' Federation, also gave evidence. He deprecated the practice of placing underground conveniences and lampposts in the centre of the street.

On Friday evidence was given by Lieut.-Colonel R. E. Crompton, C.B., R.E., the Vice-chairman of the Automobile Club. In the course of his evidence he said that one of the cheapest and easiest methods of improving roadways was for the London County Council to buy up corner houses at crossings so as to increase the roadway. The adoption of the American system of tube despatch for light baggage, mails, etc., would also tend to relieve the congestion of the streets.

Earl Russell, London County Council, and a member of the Roads Improvement Association, was then called. There were, he said, many matters of detail by attention to which the capacity of the existing streets could be increased without undue cost. The first of these was the permanent obstruction caused by lampposts, refuges, cab-ranks, and lavatories in the centre of streets. A typical example of the obstruction caused by underground lavatories was to be seen at Wellington-street, Strand. The south-east corner of that crossing was widened by the London County Council at great expense some five years ago, but with little benefit, owing to the planting of an underground convenience, which took up one-third of the roadway, at the very mouth of the approach to Waterloo Bridge. Continuing, witness said that it must be recognised that the streets were too valuable and too expensive to be used by private persons as their goods yards. While the delivery of goods to private houses might be allowed during certain hours of the day, there was no excuse for the blocking of Piccadilly by railway vans or of Arundel-street by newspaper carts. The taking up of the street in that way was no more reasonable than it would be for a builder to claim to mix his mortar in the street. Another method which would increase the capacity of the streets would be to prevent the surfaces being continually taken up by the various bodies who had statutory powers to take them up. Other proposals made by the witness were that there should be provided more viaducts similar to Holborn Viaduct, and also that "Balfour radiating thoroughfares" should be driven from the heart of the town to the outskirts.

Mr. W. Rees Jeffreys, Hon. Secretary Roads Improvement Association, said that he had made a careful study of highway administration for many years. Never in the history of London had there been any uniformity of administration in highway matters. In the Metropolitan Police District there were about ninety independent highway authorities. In the County of London there were twenty-eight highway authorities, exclusive of the County Council and the Office of Works. The general result was that the whole of the Metropolitan Area was "a chaos of mean streets, laid out without design," and enormous sums would have to be paid sooner or later for street improvements. The expensive Strand to Holborn Improvement was a result of the fact that Central London was allowed to be built up by a mass of mean streets and alleys which had to be pulled down to meet the requirements of present-day traffic. All round London streets were being laid out so that they took no share of the through traffic, but merely served to feed the main roads which had existed from mediæval times. In London we had no broadly-conceived administrative schemes such as had been adopted in Berlin, Paris, Vienna, and New York. There was a great need for a single authority exercising jurisdiction over all the means of communication within a radius of at least twenty-five miles of St. Paul's. He went on to describe the duties of such an authority, and suggested that the Metropolitan Water Board should be made the future authority for dealing with the roads and the traffic problem. It was a large body exercising jurisdiction over a very much larger area than any other metropolitan authority, and, when it had once laid down the lines of water administration, it would have very little administrative work to perform. There were two alternatives—a Traffic Commission appointed by the County Councils of London and the surrounding counties, and a commission of experts, with powers of initiative. On the question of tramways, witness said that he considered that tramway companies should not be allowed to turn the roads into tramway stations; termini should be built on land acquired for the purpose.

WESTMINSTER CITY COUNCIL.

THE usual fortnightly meeting of this Council was held on Thursday last week at the City Hall, Charing Cross-road, W.C.

Finance Committee.—This Committee reported that they had received an order from the Local Government Board sanctioning the borrowing of the sum of 4,300*l.* for the purpose of defraying the cost of reconstructing the slipper baths, laying new floors, and other works at the Marshall-street Baths. On the recommendation of the Committee it was agreed to apply to the London County Council for the advance of sums amounting to a total of 52,226*l.* for the carrying out of various works in the City. The principal items were 19,296*l.* for paving works (1903-4), 6,900*l.* for jetties at Grosvenor Wharf, 5,473*l.* for St. George's Place, Knightsbridge, improvement, and 4,600*l.* for remodelling public laundry at Marshall-street. The work at Marshall-street Baths was also included.

The General Purposes Committee reported that they had obtained legal advice in the matter of the Hyde Park-place Houses and Bayswater-road Burial Ground. The opinion expressed was that the legal estate in the land was still vested in the Rector and Churchwardens of St. George's, Hanover-square, but that the beneficial interest in the frontage and houses thereon belonged to the City Council as representing the inhabitants of St. George's Parish; further, that any new building agreement should be granted by the Rector and Churchwardens with the consent of the Local Government Board. On the recommendation of the Committee it was agreed to submit certain proposals to the Rector and Churchwardens, one of the proposals being that they (the Rector and Churchwardens) should undertake the maintenance of the burial ground.

Works Committee.—On the recommendation of this Committee it was agreed to carry out the work of repaving the following streets:—Broad Sanctuary (side and rear of Guildhall), Chandos-street, Chester-terrace (Elizabeth-street to Eaton-terrace), Coach and Horses-yard, Cockspur-street, Duncannon-street (from Charing Cross 31 yards eastwards), Endell-street, King William-street (Chandos-street, Strand), Pall Mall East, Piccadilly-circus, (granite part south side), Trafalgar-square (north and east). The selection of the material to be used in each case excepting Piccadilly-circus, south side, which is to be paved with Aberdeen Granite, was deferred until the tenders were received. The Committee reported that they had instructed the City Engineer to pave the cab-rank on the north side of Duncannon-street with asphalte. A further report by the Committee stated that they had received a report from the City Engineer that certain contracts with the Improved Wood Pavement Company for the maintenance of a total area of 25,134 square yards of wood paving at 1s. per yard per annum expired on December 3, 1902; that the Company had written stating that they were prepared to enter into a further contract for the maintenance of such roadways for a period of fifteen years upon the same terms and conditions as their previous contract. The Committee understood that there was an area of some 1,361 square yards of wood paving in Chancery-lane, the contract for maintaining which expired some time since. They were of opinion that the system of entering into long-term maintenance contracts was undesirable, as, by reason of the contracts, the Council had not been able to exercise that amount of control which was necessary. They recommended and it was agreed "that in cases where contracts for the maintenance of the paving of carriageways have expired the Council do themselves maintain the roadways, and that the Improved Wood Pavement Company be informed accordingly."

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necessary in varying circumstances, and these are followed by a detailed description of the fittings required, aided by several drawings to scale. Chemical benches for students, lecture tables, draught closets, shelves, etc., are carefully dealt with, but we should like to have seen an attempt to discuss the requirements of some of the special branches of the subjects; metallurgical laboratories, special arrangements for organic work, and for the physical branches of chemistry, for example, are dismissed by the author in a few lines, but perhaps limitations, to the size of the volume, has prevented us from benefitting by his experience in these matters. The drainage of a chemical laboratory, so often on a first floor, is another point upon which both builder and architect would often desire more advice than is given in the book.

Pages 88 to 116 are, in a similar way, devoted to Physical Laboratories. The author excludes iron and steel from such laboratories, and where advanced work in magnetism and electricity is contemplated, this is very proper; we do not, however, think it is always necessary, and it would in many cases involve much additional expense in construction. The fittings of a physical laboratory are of a much simpler character than those for chemical work, and this section might have been amplified by some suggestions for suitable wiring, for the supply of current to working benches, transformers, and simple mercury and other switch boards. These are points upon which the profession and the building trades are usually very little informed, and which must be specified for the electricians for this class of work.

The next forty pages of the book give a useful *resumé* of the subjects of ventilation, warming, and lighting, and the volume concludes with the appendices of the Board of Education relating to science teaching.

We think this book, which stands almost alone in the field, will prove of no little service to those who are interested in this important and growing subject.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price Book for 1904. Edited by FRANCIS T. W. MILLER, A.R.I.B.A. London: Crosby, Lockwood and Son, 7, Stationer's Hall-court. 1904.

As the Editor remarks in the preface, "the past year has not been a very eventful one in the building trade," consequently he has few variations to note upon the previous edition. Probably owing to the slackness of trade, prices have generally ruled somewhat lower due to the keener competition. This dropping of prices, however, cannot be considered permanent, so that the Editor cannot be blamed for keeping to those generally of 1903. The tendency of price books of a few years ago was to put the prices so much above current rates, as to make them almost useless as works of reference, unless a general discount was agreed upon at the outset; but in the present instance, if any fault is to be found, it is that in some instances they are somewhat lower, particularly in Joiner's Work.

In a work such as this we would rather not see recommendations of special firms, with a reference to the advertisement pages, for the class of work not confined to any particular firm (*vide* p. 321). In the case of specialities, this objection does not apply, but the quotations would be more reliable if the net prices were quoted rather than the list prices. This, of course, opens up the much vexed question of trade discounts, a subject upon which, from the architect's point of view, there ought to be no question. The supplement, which, as heretofore, forms an important proportion of the work, has been revised to date, and thus maintains its usefulness. To sum up, it only remains to be said that the work maintains the high standard of usefulness it has reached during the past few years.

Laxton's Builder's Price Book for 1904. Originally compiled by WILLIAM LAXTON. Eighty-seventh Edition. London: Printed and Published by Kelly's Directories Limited, 182, 183, and 184, High Holborn, W.C.

AN annual publication that has arrived at its eighty-seventh edition, must of necessity merit some degree of respect if only that due to age. The unfortunate thing about most works of so many years existence, is that we have the same old facts dished up year after year in exactly the same form, so that frequently the date is about the only variation from former editions. In the case of "Laxton," happily this objection does not exist, as for some years now a conscientious revision and amplification has taken place, which enables it, notwithstanding the serious rivalry of newer works, to take a high position in the world of price books. One section, in particular, has been brought up-to-date—*i.e.*, "Constructional Engineer," an extremely important one in these days of steel construction. In the present work this has been dealt with most completely, and the new list of standard sections of rolled steel joists, issued last year by the Engineering Standards Committee, will save a good deal of the trouble caused by the variations of sections rolled by the different firms. The paragraphs on "Cutting to fixed lengths," "Rolling margin," and "Economic sections" well deserve study.

In this work, also, the prices of some of the joinery work strike us as somewhat low.

Why will the Editor still perpetuate the erroneous "example," on page 45, which has remained the same, notwithstanding that the rate of wages has risen from 9½d. to 10d., and from 10d. to 10½d., and to which we have before drawn attention. As we understand it, instead of reading "*add* one-nineteenth (or, say, 5¼ per cent.)," it should be "*deduct* one-twenty-first (or, say, 4¾ per cent.)" to bring the rate down to 10d. per hour. A small point certainly, but if given at all it should be given correctly.

This work, nevertheless, keeps up its character of excellence, and is a good example of the benefit of healthy competition.

Proceedings of the Incorporated Association of Municipal and County Engineers, 1902-3. Edited by THOMAS COLE, A.M.Inst.C.E. London: E. and F. N. Spon, Limited. 1903.

THIS year-book contains, as usual, a large amount of useful information, chiefly relating to municipal works in various cities and towns. There are, however, reports of several papers which should be of interest to our readers. Among such, we may mention one upon "Wooden Structures and the Powers of Metropolitan Borough Councils with Respect thereto," by Mr. J. Patten Barber, M.Inst.C.E. The first points for consideration by a municipal engineer in connexion with applications relative to the erection of wooden structures generally, are danger from fire and from the loads which the structures will have to sustain. The author points out that persons applying for licenses do not appear to realise the responsibilities resting upon borough councils and engineers, and he also shows that much difficulty has arisen in the past owing to the imperfect condition of legislation on the subject under consideration. The intricacies of the London Building Act, 1894, are so thoroughly recognised that the author hopes his views "will be received as impressions rather than regarded as dogmatic opinions." As our readers are aware, there is no definition in the Building Act either of a "building" or a "structure," and unless a building is a structure, no borough council can issue a license for the erection of a wooden building. It has indeed been suggested that such bodies have no jurisdiction in the case of wooden buildings, and that their powers relate only to wooden structures. Even when a licence has been obtained from a Borough Council, the builder must give notice to the District Surveyor, who has power to act without consulting the council in any way. Owing to anomalies of this kind, enumerated by Mr. Barber, it seems that builders are subjected to a considerable amount of unnecessary trouble and expense, and we quite agree with the author that the present condition of things is highly unsatisfactory.

Another paper of great practical value is that on "Minimising the Risk of Fire in Temporary Buildings," by Mr. T. W. Aldwinkle. This communication deals almost entirely with temporary hospital buildings. Having briefly described the usual construction of such buildings, Mr. Aldwinkle considers the steps that should be taken to minimise the risk of fire, both in existing buildings and in those to be erected in the future. He devotes attention chiefly to a consideration of the means most suitable for preventing the spread of flame in a given building, or from one building to another. All the suggestions made in this paper are good, but they do not include any points with which architects are not perfectly familiar. It may be regretted that the paper was not extended so as to include various temporary structures, other than hospital buildings, erected in all parts of the country by local authorities and private individuals.

The Year's Art, 1904. Compiled by A. C. R. CARTER. London: Hutchinson and Co. 1904.

THIS useful publication keeps up its old form in the hands of the same editor, but of new publishers. It includes an artist's calendar and diary; a directory of artists; full information as to Art Institutions in England and abroad; a list of fine art dealers in the United Kingdom, and much other information useful to artists. The Editor writes a review of the art of the past year, and Mr. H. H. Statham a special article on "Architecture in 1903." A portrait of Mr. Sargent forms the frontispiece to the volume, which also includes among its illustrations a portrait of Mr. Carter, the Editor, from a painting by Mr. Ellis Roberts exhibited at the Society of Portrait Painters.

BOOKS RECEIVED.

HOW TO JUDGE ARCHITECTURE. By Russell Sturgis. (Macmillan and Co. 6s.)

A HANDBOOK OF TECHNICAL TERMS USED IN ARCHITECTURE AND BUILDING. By Augustine C. Passmore. (Scott, Greenwood, and Co.)

ANCIENT AND MODERN FURNITURE. By John W. Small, F.S.A.Scot. (Eneas Mackay, Stirling.)

THE MUNICIPAL YEAR-BOOK OF THE UNITED KINGDOM FOR 1904. Edited by Robert Donald. (Edward Lloyd.)

THE NORTHAMPTON INSTITUTE.

ON Friday evening last week the prizes and certificates awarded during the session 1902-1903 to students at the Northampton Institute were distributed by Lord Kelvin. Mr. L. B. Sebastian, Chairman of the governing body, presided.

Dr. R. Mullineux Walmsley (the Principal) in his report on the work of the session said that the very specialised work of the Institute did not lend itself well to brilliant results in outside examinations and competitions, but the successes obtained both in examinations and competitions were very gratifying. In the examinations of the City and Guilds of London Institute a number of medals and prizes were obtained, and in the open competitions for the London County Council's scholarships in artistic crafts work fourteen exhibitions and scholarships were obtained as against eight in the preceding year. The Electrical Engineering Department still continued to attract the greater number of students. The laboratories, workshops, and lecture-roms were overcrowded, and a great number of students had to be refused admission. Additional accommodation was, therefore, very urgently required.

Lord Kelvin said that the existence of this Institute was a splendid example of the truth that good deeds are everlasting. The benefactions of 500 and 600 years ago and of the intervening centuries had been turned to account in these days in a manner that he felt sure would have received the approval of those who left the money, could they have foreseen to what purposes their gifts would be applied. He was told that the Northampton Institute received 4,500*l.* towards its support from the City Parochial Foundation That body had two objects—the preservation of open spaces, and the maintenance and extension of education. He believed that the Technical Education Board of the London County Council was the largest contributor to the funds of the Institute. It gave 16,000*l.* towards the building and equipment of the Institute, and made an annual grant of 3,000*l.* The opportunity had been afforded him that evening of inspecting the Electrical Engineering Department of the Institute, and he had been greatly struck with the splendid arrangements they had for imparting scientific instruction to students in the most practical form. The scientific aspects of the Institute's work were most interesting to him. When they thought of the great discoveries of Faraday in England and of Henry in America, and the succession of workers from their time to the present day who had added so much to our knowledge, they could not help being struck with the enormous progress which science had made within a comparatively short period, and perhaps that progress had been even more remarkable and striking at the beginning of

the XXth century than during the whole of the XIXth Century. Many of these discoveries were for the moment in the realm of pure science, presenting no prospect of practical application; but what was to be thought of a scientific investigator who only looked for an immediate practical application of the result of his labours? The electrical discoveries of Faraday and Henry would never have been made if those great men had contented themselves with asking who will benefit by them. Even at the Northampton Institute he trusted that at least part of the object of the instruction was to give happiness to those who were learning and to give them some insight into the laws of nature. He believed that the everyday workman would be all the happier for knowing something of the laws of nature developed in the work he was called upon to perform. The habit of mind of thinking scientifically and bringing scientific knowledge to bear on the practical work of life would not only contribute to the work being well done, but would largely contribute to the richness and mental wealth of the work. He trusted that the students would learn a good deal at the Institute which would remain with them and be a valuable possession to them as long as they lived.

On the motion of Sir William White, seconded by Mr. James Gavey, a vote of thanks was passed to Lord Kelvin, and, a vote of thanks having been passed to the Chairman for presiding, the visitors were invited to inspect the laboratories and workshops, where specimens of the students' work were shown and demonstrations of the methods employed were given.

ROYAL COMMISSION ON LONDON LOCOMOTION.

AT the sitting of this Commission at the Westminster Palace Hotel last week, evidence was given by the Right Hon. J. W. Lowther, M.P., Chairman of the Committee of Ways and Means in the House of Commons, who explained the procedure taken with regard to private Bills. He did not believe that Parliament would ever consent to hand over to an entirely independent tribunal the ultimate decision and control of such important matters as the routes, etc., of tube railways, nor did he think that important companies, capitalists, or public bodies would be satisfied with anything less than a Parliamentary decision. There were several objections to any tribunal laying down a general scheme for meeting traffic requirements. The work of evolving such a scheme would involve engineering and financial investigations of vast magnitude, and entail a huge staff of highly-paid experts, engineers, legal advisers, electricians, draughtsmen, geologists, and clerks.

Mr. J. L. Pound, Chairman of the London Omnibus Owners' Federation, also gave evidence. He deprecated the practice of placing underground conveniences and lampposts in the centre of the street.

On Friday evidence was given by Lieut.-Colonel R. E. Crompton, C.B., R.E., the Vice-chairman of the Automobile Club. In the course of his evidence he said that one of the cheapest and easiest methods of improving roadways was for the London County Council to buy up corner houses at crossings so as to increase the roadway. The adoption of the American system of tube despatch for light baggage, mails, etc., would also tend to relieve the congestion of the streets.

Earl Russell, London County Council, and a member of the Roads Improvement Association, was then called. There were, he said, many matters of detail by attention to which the capacity of the existing streets could be increased without undue cost. The first of these was the permanent obstruction caused by lampposts, refuges, cab-ranks, and lavatories in the centre of streets. A typical example of the obstruction caused by underground lavatories was to be seen at Wellington-street, Strand. The south-east corner of that crossing was widened by the London County Council at great expense some five years ago, but with little benefit, owing to the planting of an underground convenience, which took up one-third of the roadway, at the very mouth of the approach to Waterloo Bridge. Continuing, witness said that it must be recognised that the streets were too valuable and too expensive to be used by private persons as their goods yards. While the delivery of goods to private houses might be allowed during certain hours of the day, there was no excuse for the blocking of Piccadilly by railway vans or of Arundel-street by newspaper carts. The taking up of the street in that way was no more reasonable than it would be for a builder to claim to mix his mortar in the street. Another method which would increase the capacity of the streets would be to prevent the surfaces being continually taken up by the various bodies who had statutory powers to take them up. Other proposals made by the witness were that there should be provided more viaducts similar to Holborn Viaduct, and also that "Balfour radiating thoroughfares" should be driven from the heart of the town to the outskirts.

Mr. W. Rees Jeffreys, Hon. Secretary Roads Improvement Association, said that he had made a careful study of highway administration for many years. Never in the history of London had there been any uniformity of administration in highway matters. In the Metropolitan Police District there were about ninety independent highway authorities. In the County of London there were twenty-eight highway authorities, exclusive of the County Council and the Office of Works. The general result was that the whole of the Metropolitan Area was "a chaos of mean streets, laid out without design," and enormous sums would have to be paid sooner or later for street improvements. The expensive Strand to Holborn Improvement was a result of the fact that Central London was allowed to be built up by a mass of mean streets and alleys which had to be pulled down to meet the requirements of present-day traffic. All round London streets were being laid out so that they took no share of the through traffic, but merely served to feed the main roads which had existed from mediæval times. In London we had no broadly-conceived administrative schemes such as had been adopted in Berlin, Paris, Vienna, and New York. There was a great need for a single authority exercising jurisdiction over all the means of communication within a radius of at least twenty-five miles of St. Paul's. He went on to describe the duties of such an authority, and suggested that the Metropolitan Water Board should be made the future authority for dealing with the roads and the traffic problem. It was a large body exercising jurisdiction over a very much larger area than any other metropolitan authority, and, when it had once laid down the lines of water administration, it would have very little administrative work to perform. There were two alternatives—a Traffic Commission appointed by the County Councils of London and the surrounding counties, and a commission of experts, with powers of initiative. On the question of tramways, witness said that he considered that tramway companies should not be allowed to turn the roads into tramway stations; termini should be built on land acquired for the purpose.

WESTMINSTER CITY COUNCIL.

THE usual fortnightly meeting of this Council was held on Thursday last week at the City Hall, Charing Cross-road, W.C.

Finance Committee.—This Committee reported that they had received an order from the Local Government Board sanctioning the borrowing of the sum of 4,300*l.* for the purpose of defraying the cost of reconstructing the slipper baths, laying new floors, and other works at the Marshall-street Baths. On the recommendation of the Committee it was agreed to apply to the London County Council for the advance of sums amounting to a total of 52,226*l.* for the carrying out of various works in the City. The principal items were 19,298*l.* for paving works (1903-4), 6,900*l.* for jetties at Grosvenor Wharf, 5,473*l.* for St. George's Place, Knightsbridge, improvement, and 4,600*l.* for remodelling public laundry at Marshall-street. The work at Marshall-street Baths was also included.

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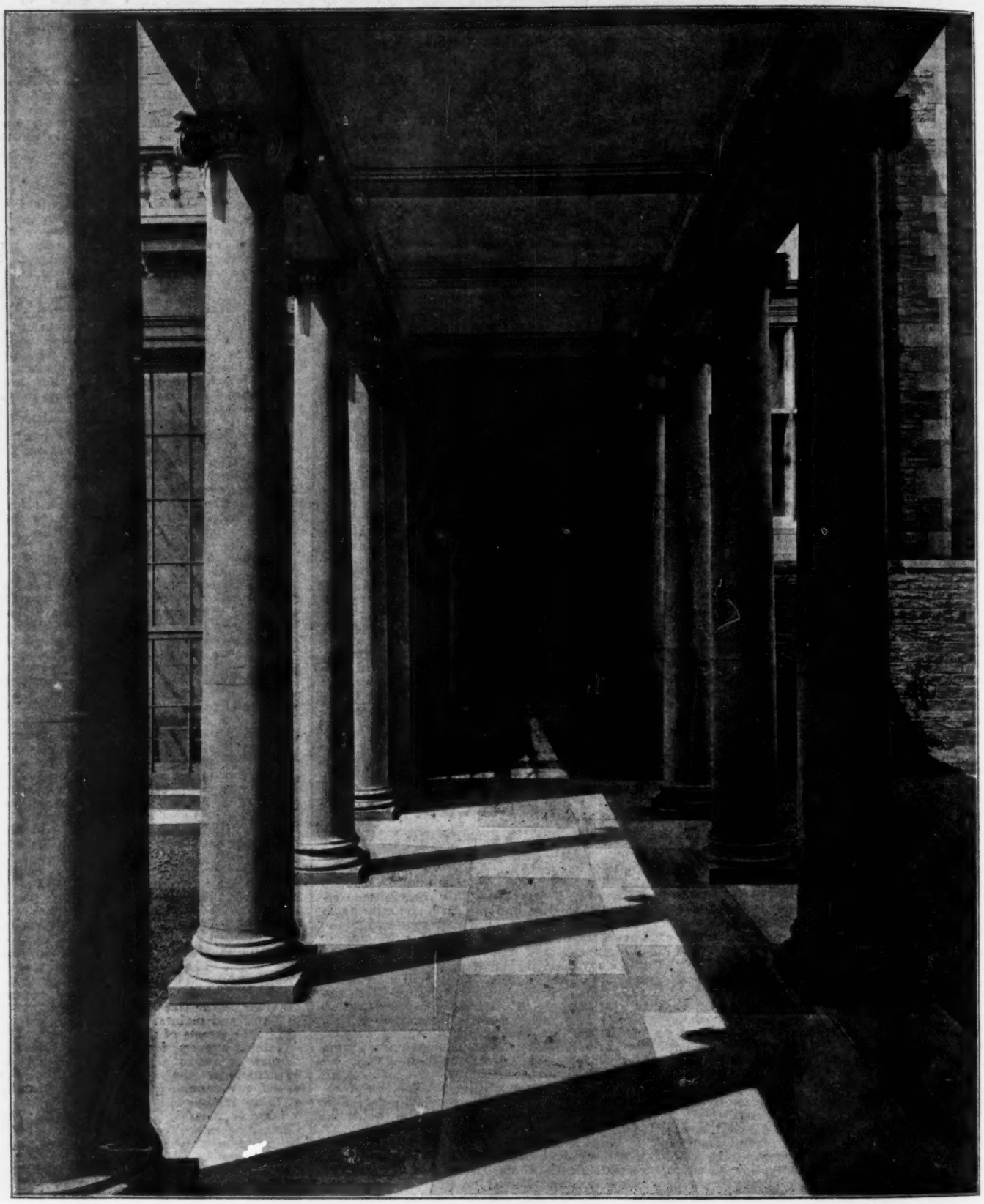


House at Scarborough: The Loggia.

human habitation, or is in such state that the occupation thereof should be immediately discontinued, it shall not be necessary for them before obtaining a closing order to serve notice on the owner or occupier of the premises to abate the nuisance. In respect of a letter from the London County Council in regard to the Wardour-street Improvement, it was agreed to inform that body that it had not been found practicable to carry out the entire scheme, but that it was the intention of the City Council to complete the improvement as opportunity occurred. In regard to a suggestion of the London County Council that the actual line of any street improvement, to which that Council had agreed to contribute, should be staked out in strict adherence to the approved plan, and in the presence of an official from the Council's Engineers' or Architects' Department, it was agreed to accede to the request on condition that the County Council would undertake to send a similar intimation to the City Council in cases of improvements undertaken by them within the City of Westminster, and towards the cost of which the City Council had agreed to contribute, so that one of their officials should be present.

Having transacted other business, the Council adjourned shortly after 6.30.

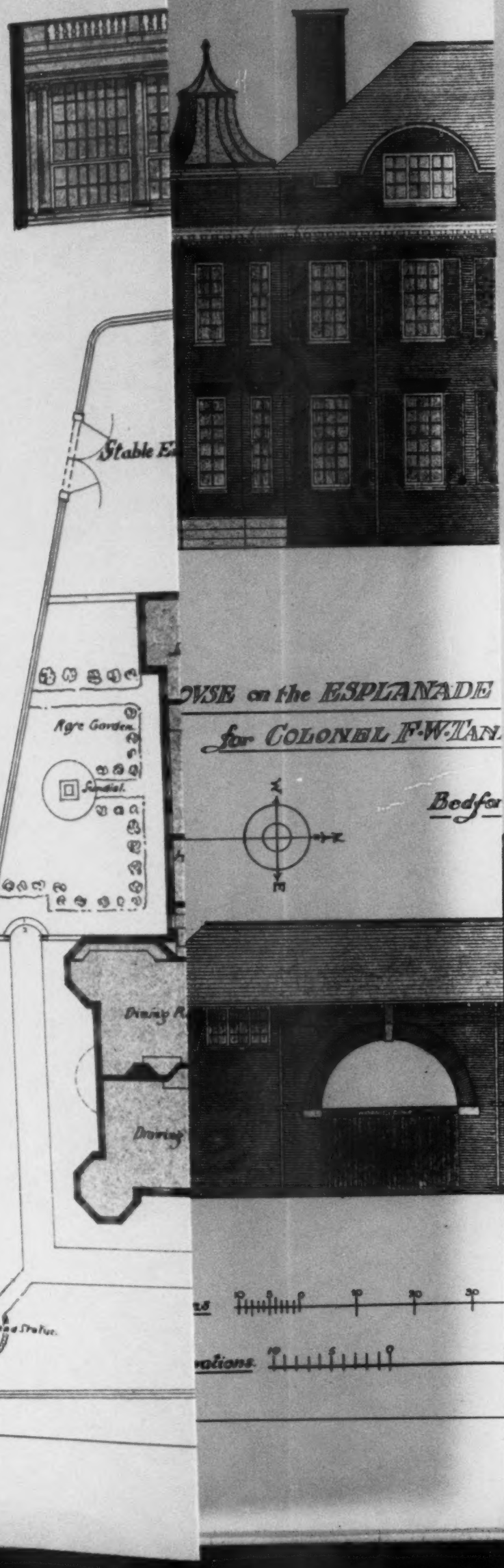
CARPENTERS' HALL LECTURES.—Our report of Professor W. Schlich's lecture on "The Forestry Problem in the United Kingdom" at Carpenters' Hall is unavoidably held over until next week.

Illustrations.

HOUSE AT SCARBOROUGH.

THIS house, called "Red Court," was erected in 1901, and occupies a position on the Esplanade with fine views of Scarborough Castle and Harbour on the one hand and Filey Brigg on the other.

The materials used in its construction were Sileby sand-faced bricks, stone from the neighbourhood of Kirby Moorside, and Portland cement for the external cornice; the roofs are covered with green Westmorland slates. The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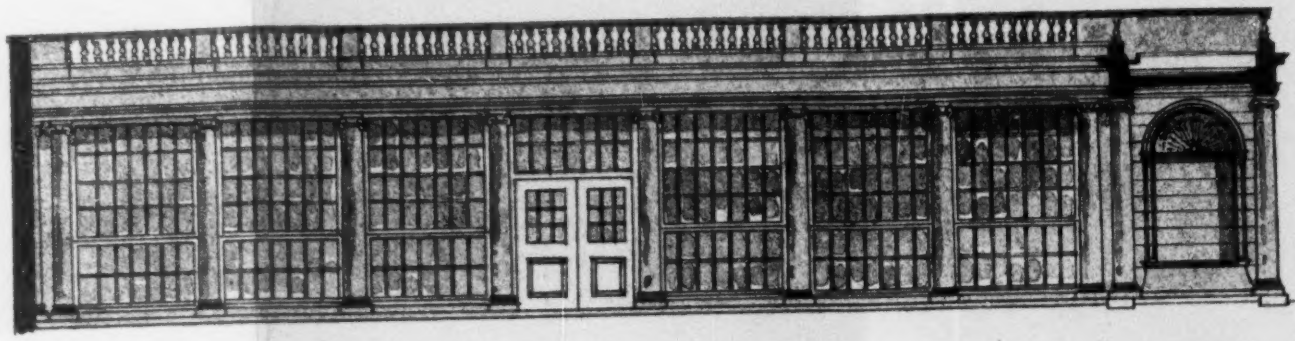
4 & 5 EAST HARDING STREET, FETTE



ELEVATION of PALM HOUSE

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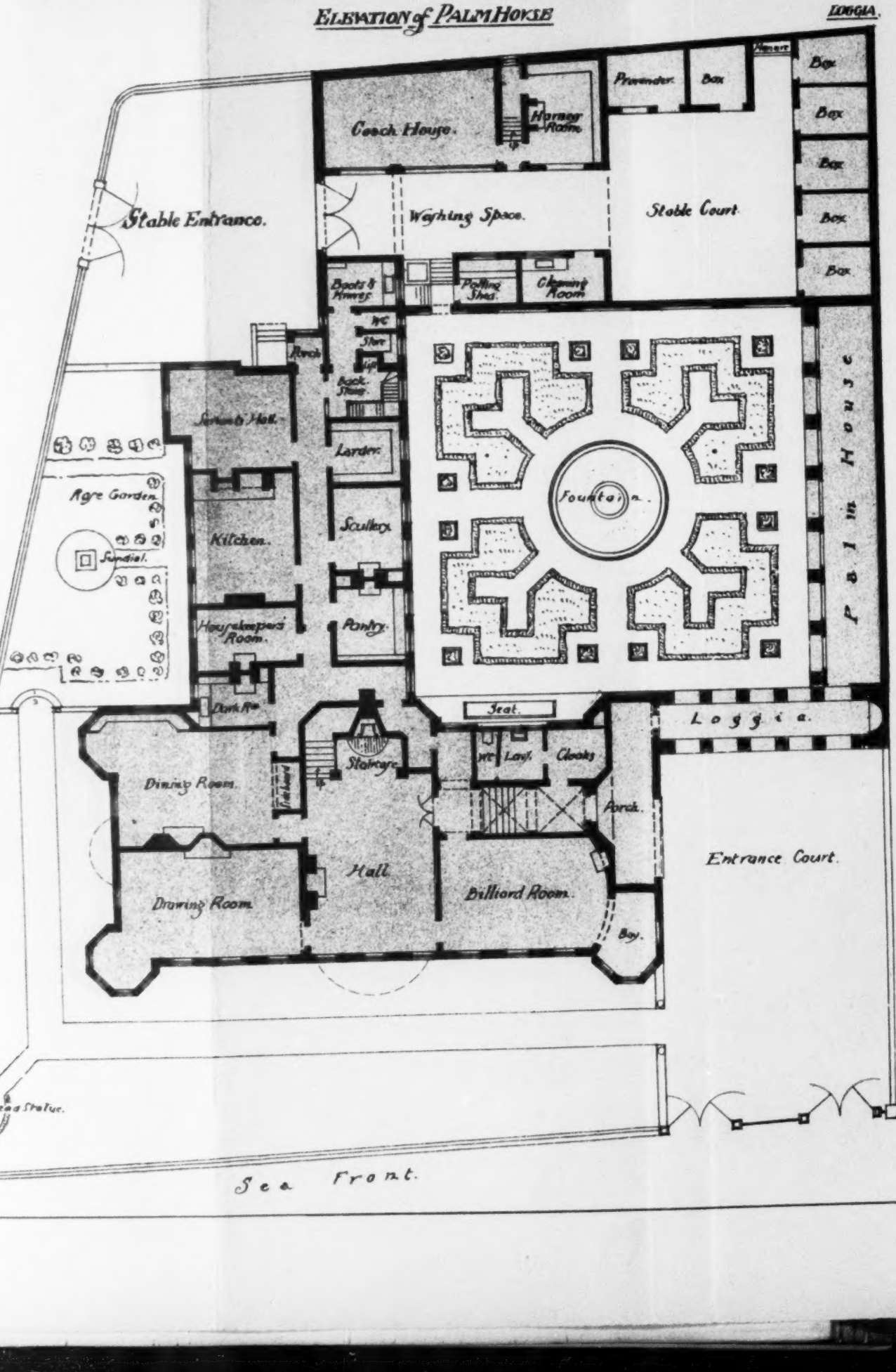
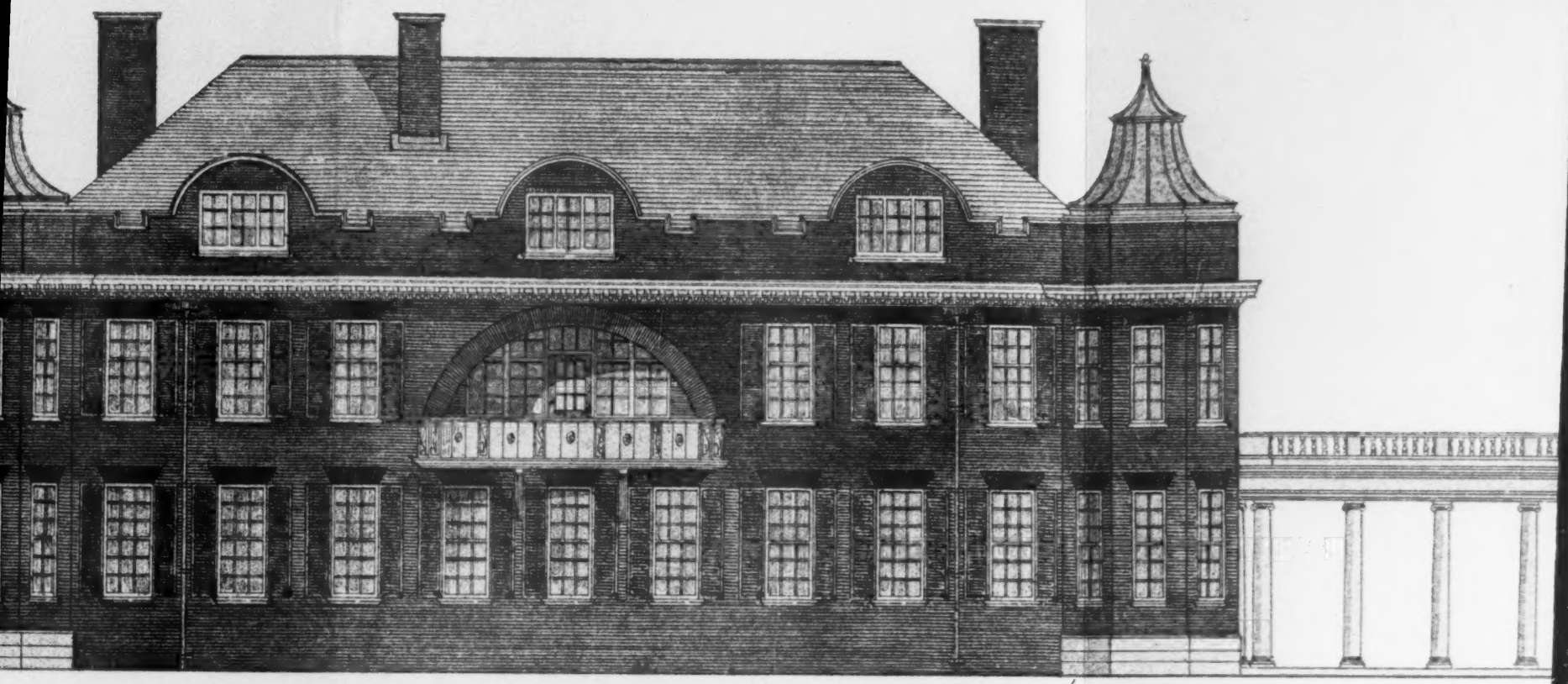


Scale for Plans

Scale for Elevations.



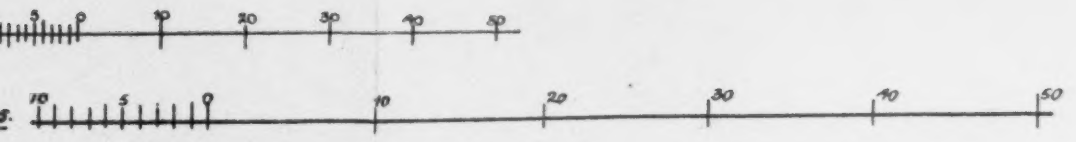
EAST ELEVATION

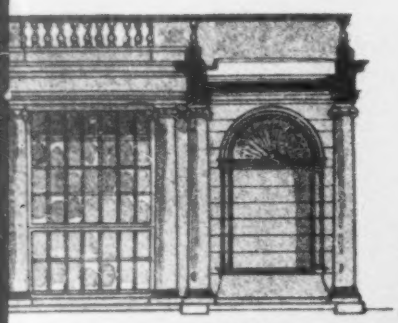
on the ESPLANADE SCARBOROUGH

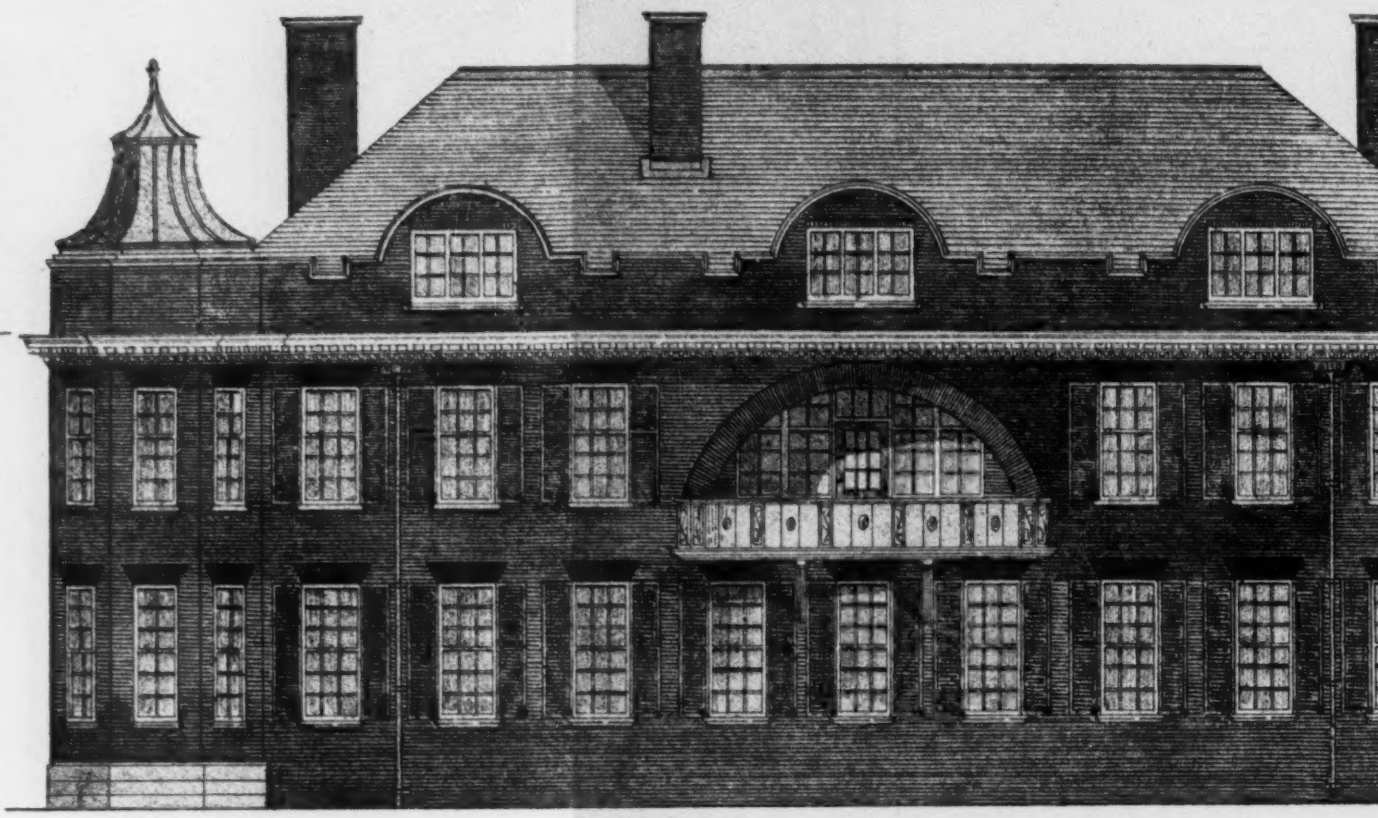
for COLONEL F. W. TANNETT-WALKER.

Bedford & Kitson Architects.

SOUTH ELEVATION.





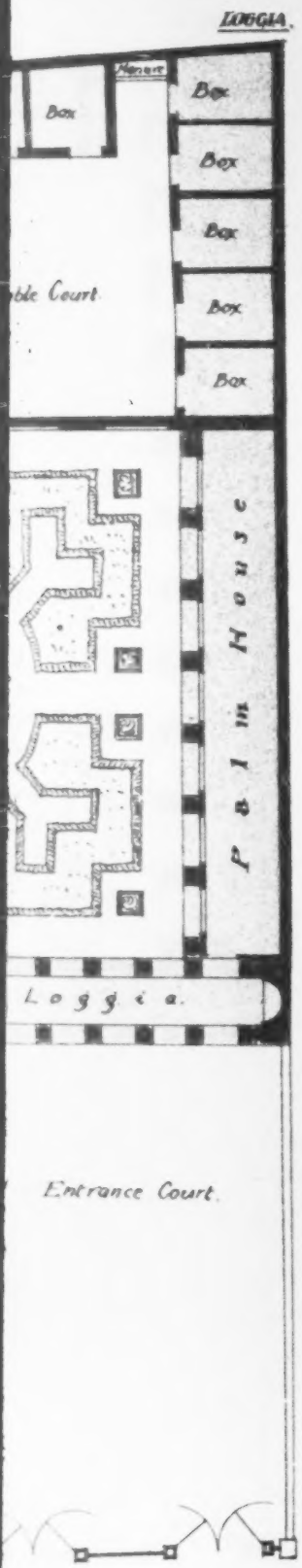


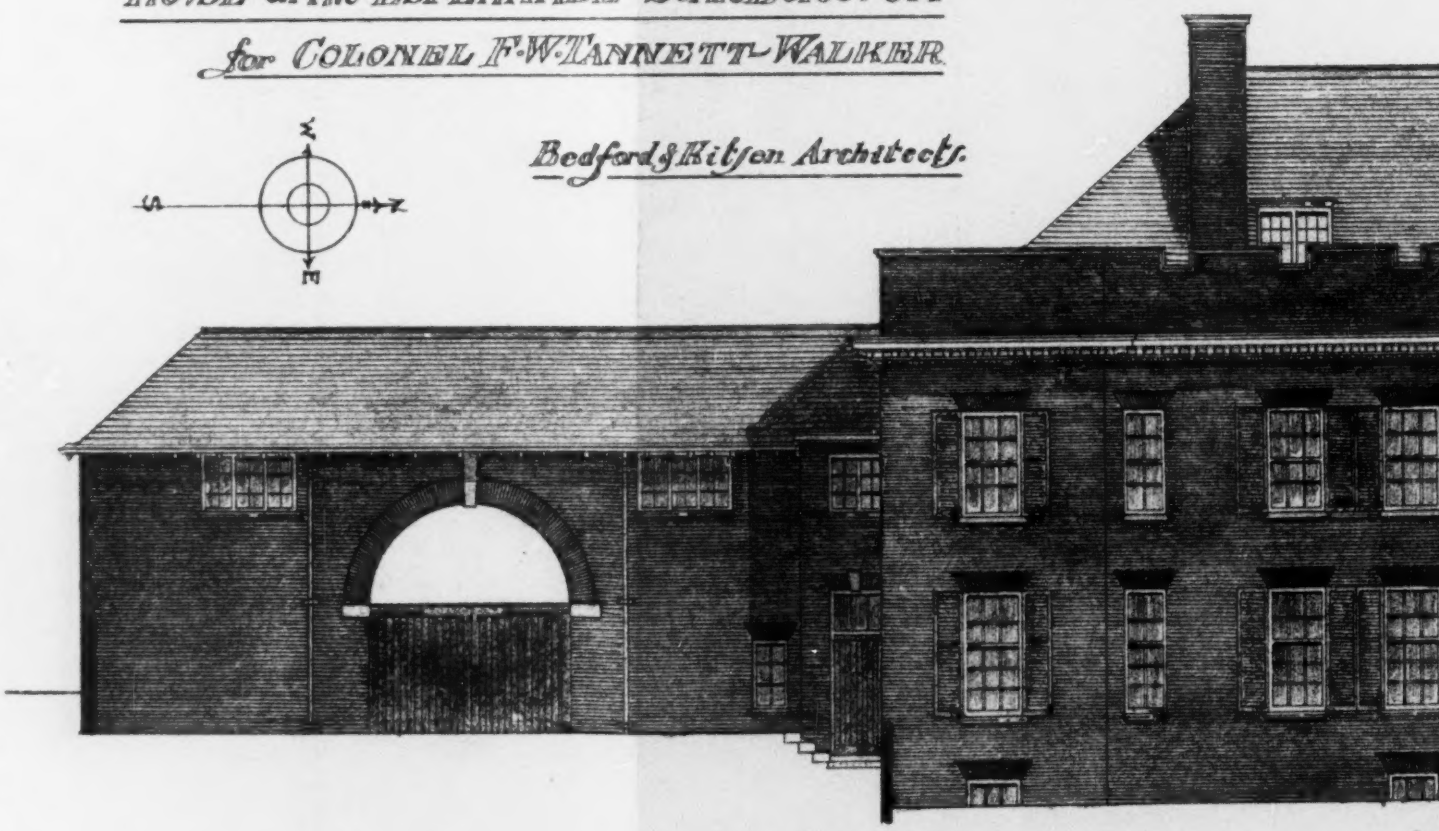
EAST ELEVATION

HOUSE on the ESPLANADE SCARBOROUGH

for COLONEL F. W. TANNETT-WALKER

Bedford & Kitson Architects.





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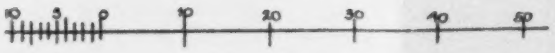

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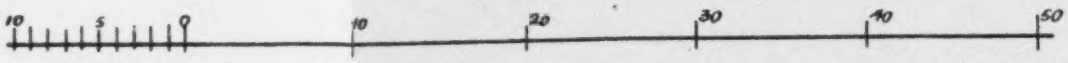
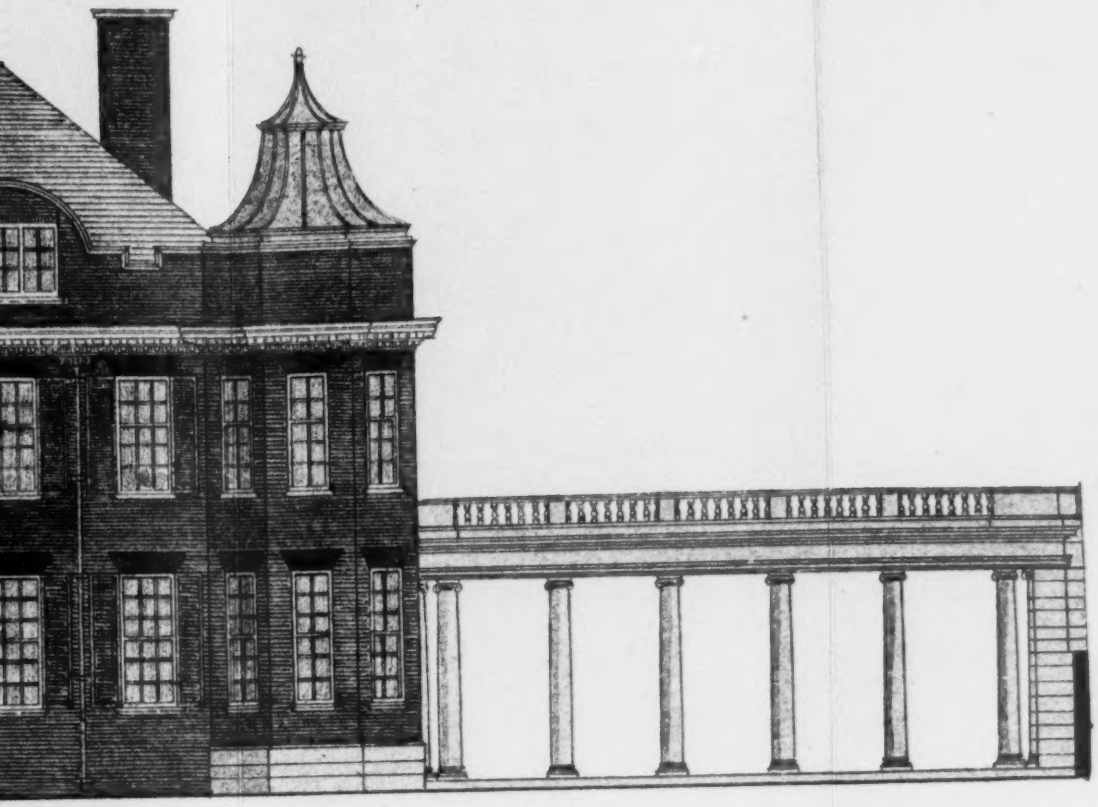
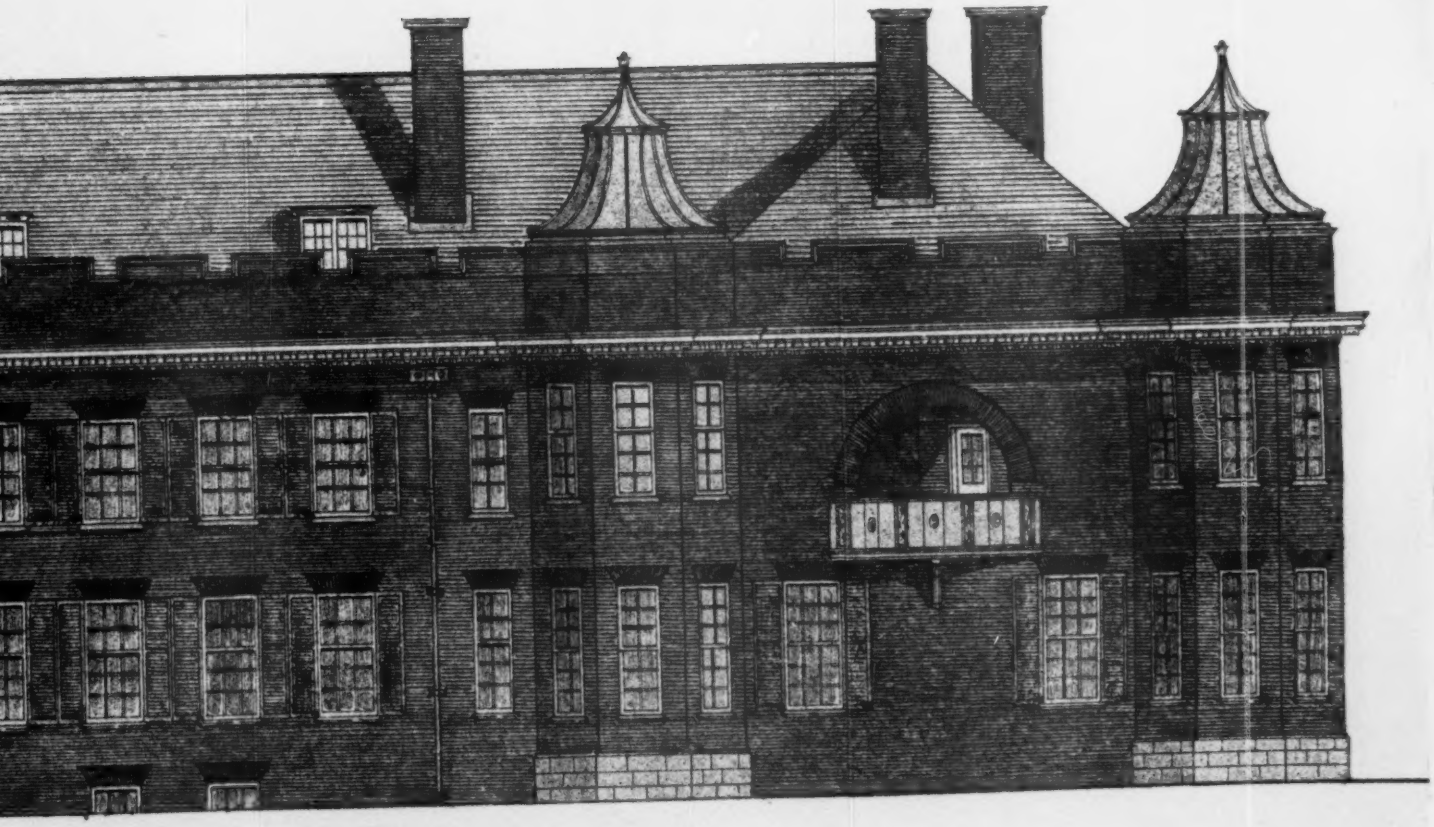






SOVTH ELEVATION.

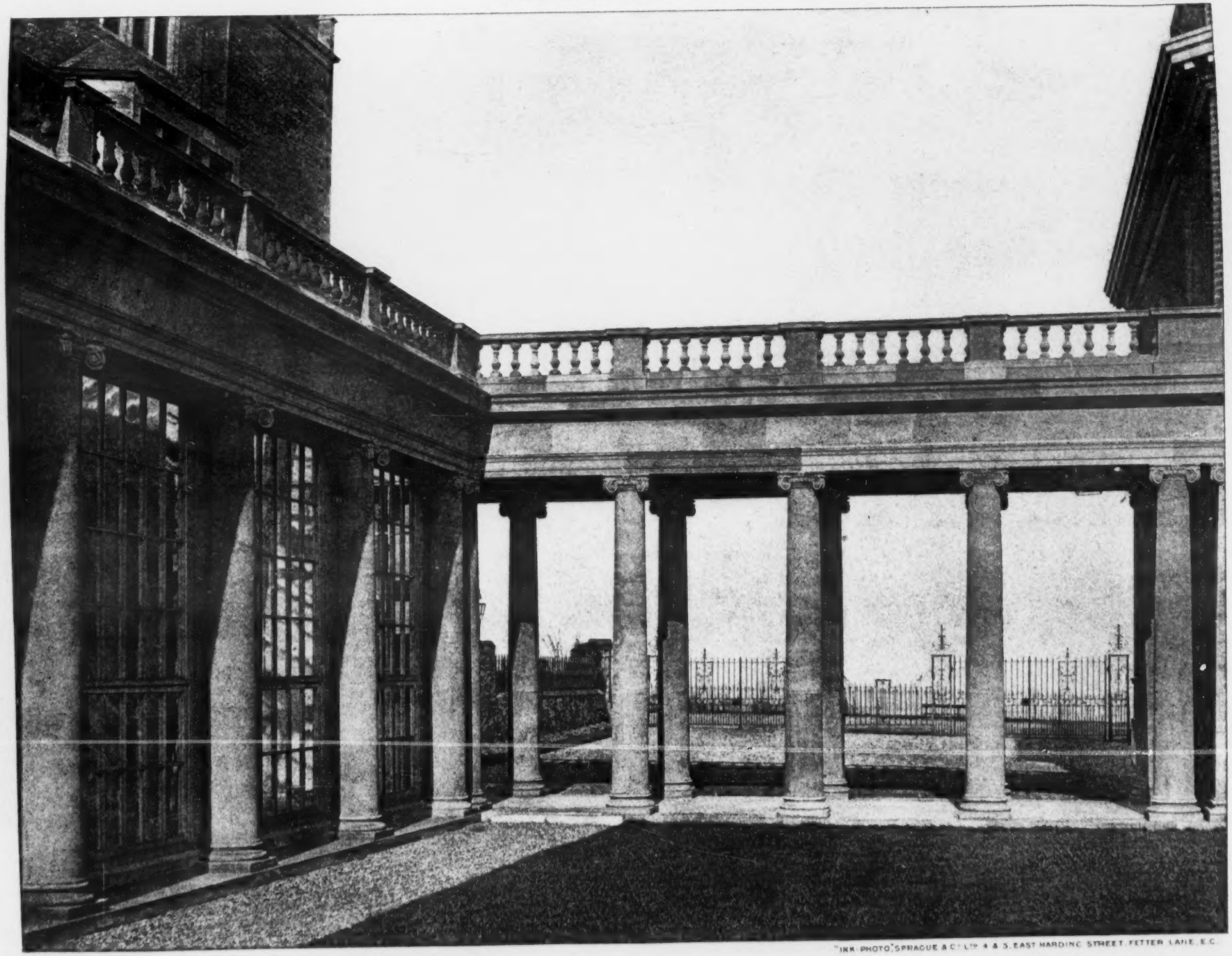
50

INK PHOTO SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE EC

"INK-PHOTO" SPRAGUE & Co. LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

HOUSE AT SCARBOROUGH: FROM THE NORTH-EAST.—Messrs. Bedford & Kitson, Architects.

HOUSE AT SCARBOROUGH: FROM THE NORTH-EAST.—Messrs. Bedford & Kitson, Architects.



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HOUSE AT SCARBOROUGH: THE LOGGIA.—Messrs. Bedford & Kitson, Architects.

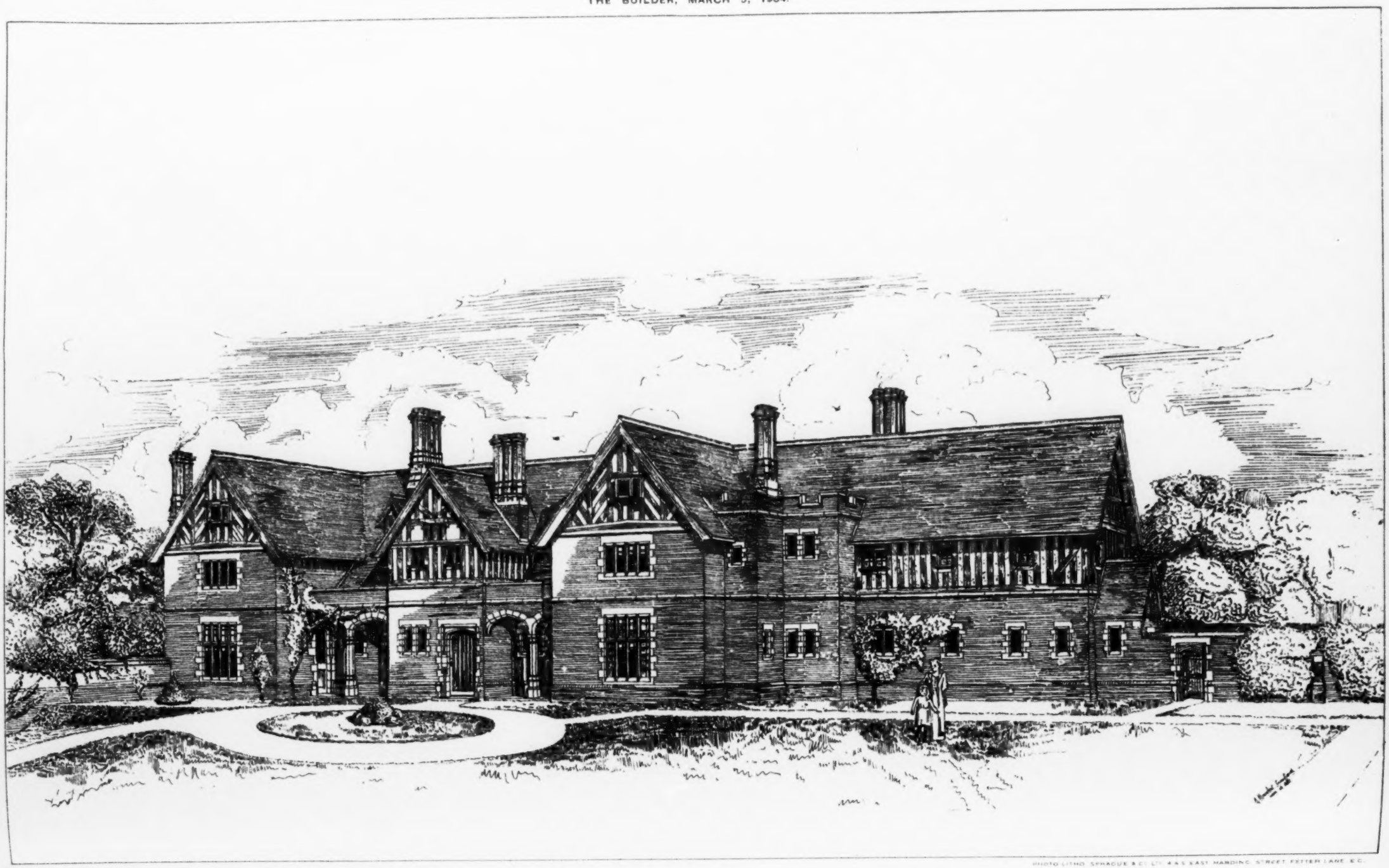


PHOTO-LITHO SPRAGUE & C° LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

A COUNTRY HOUSE.—Mr. A. H. Crawford, F.R.I.B.A., Architect.

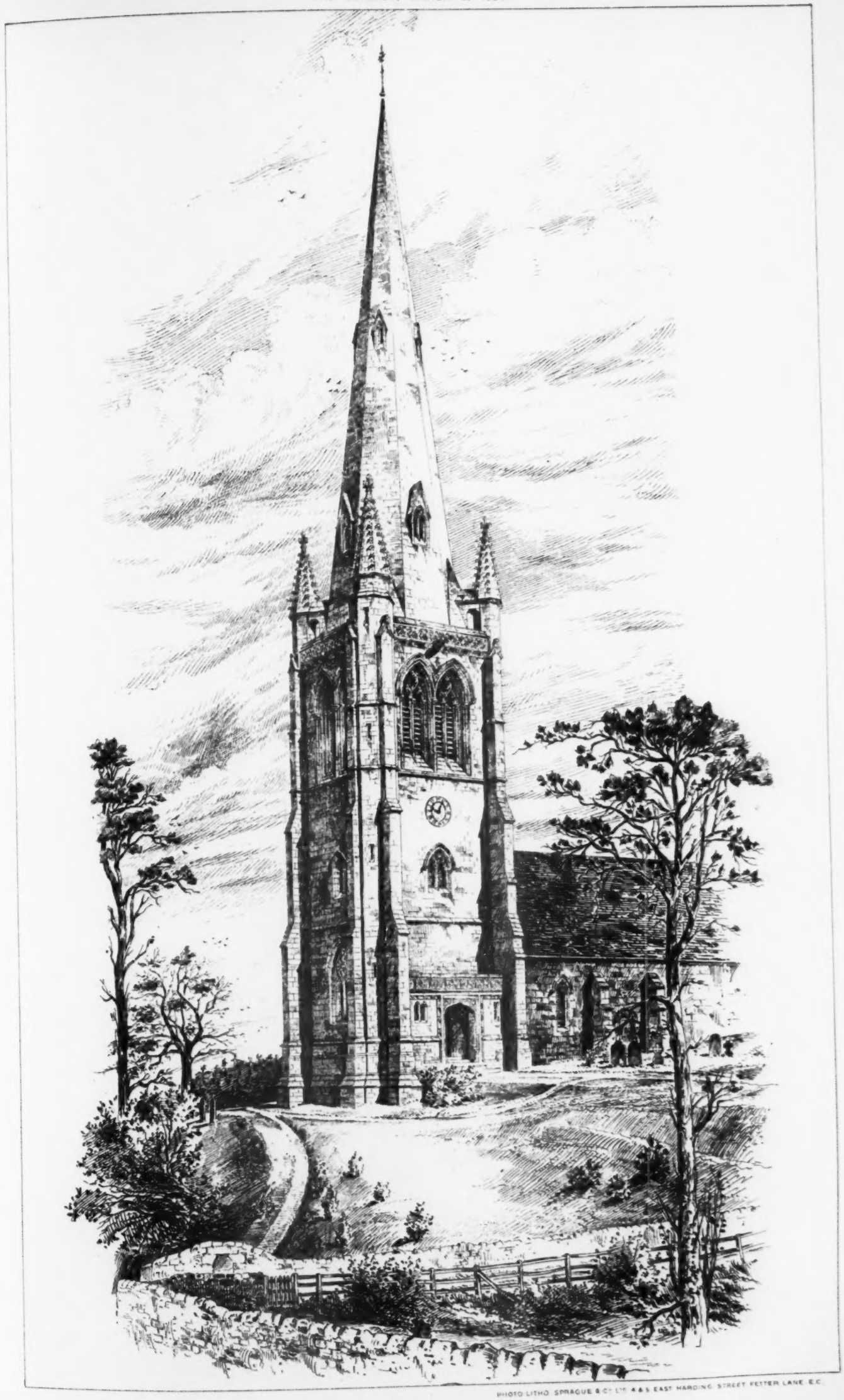
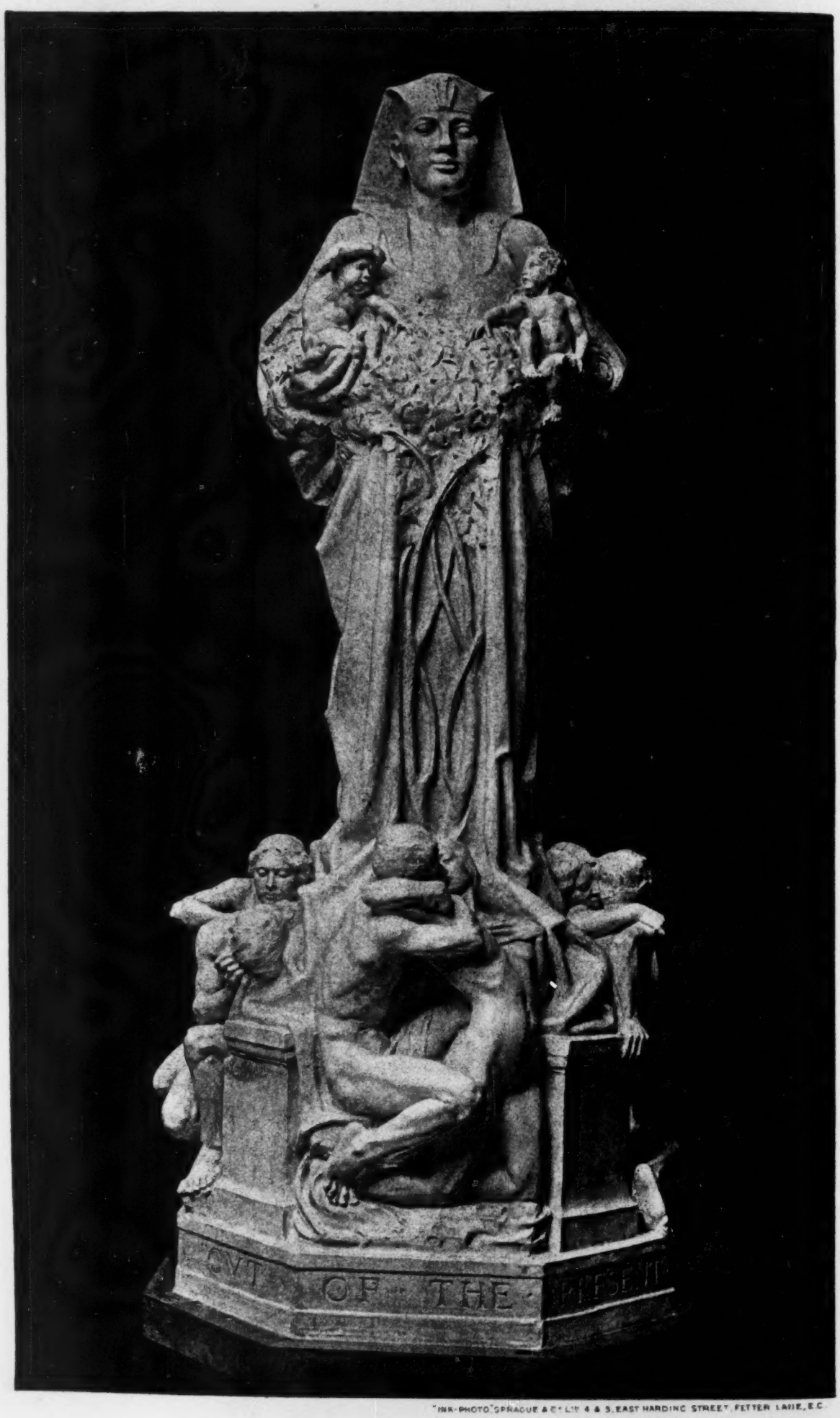


PHOTO LITHO SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE E.C.

CLIVE CHURCH, NEAR SHREWSBURY.—Mr. C. J. Ferguson, F.S.A., Architect.

A COUNTRY HOUSE.—Mr. A. H. Crawford, F.R.I.B.A., Architect.

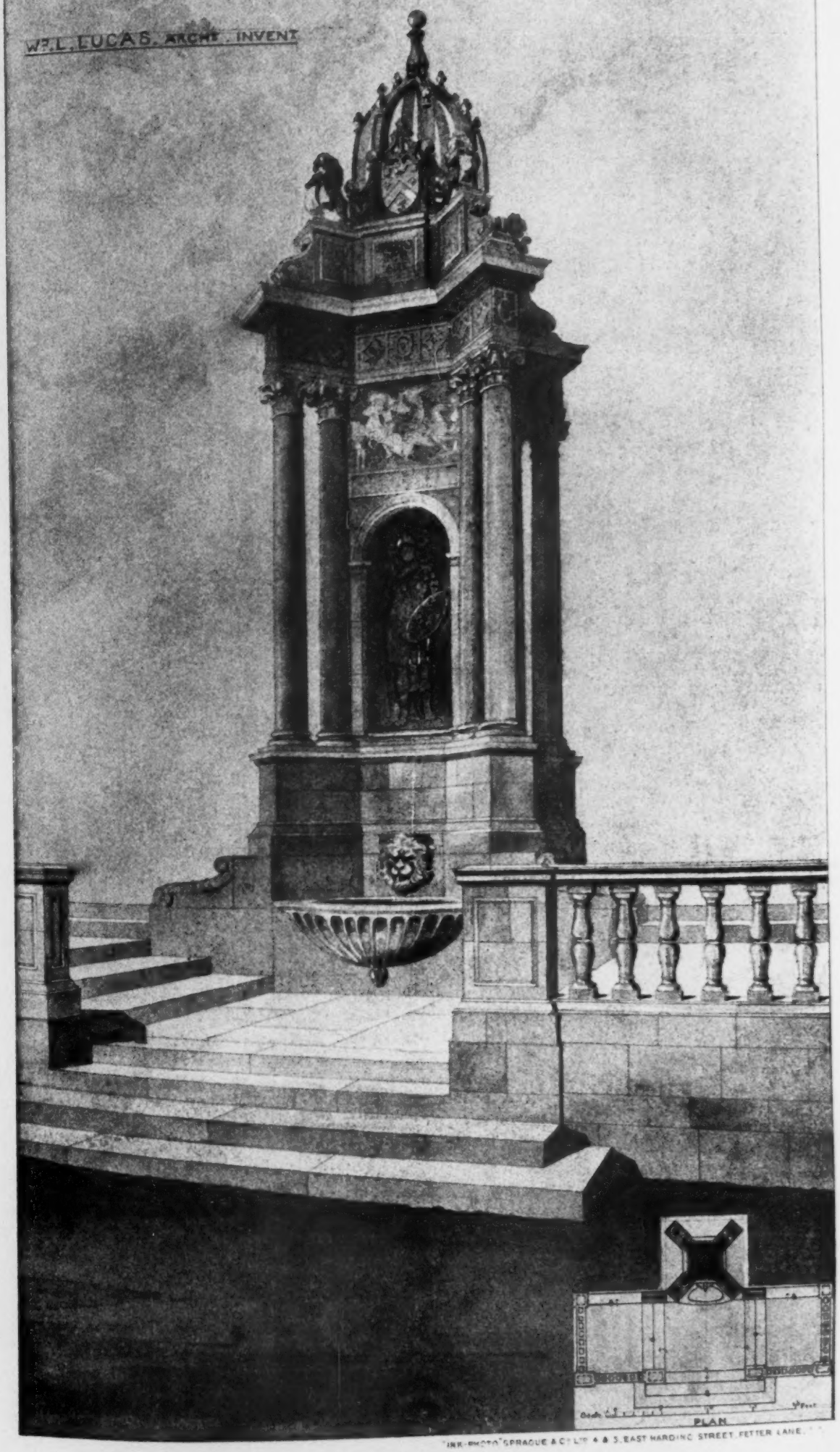


"INK-PHOTO" SPRAGUE & Co. LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

"THREE GENERATIONS."—Mr. Leonard Jennings, Sculptor.

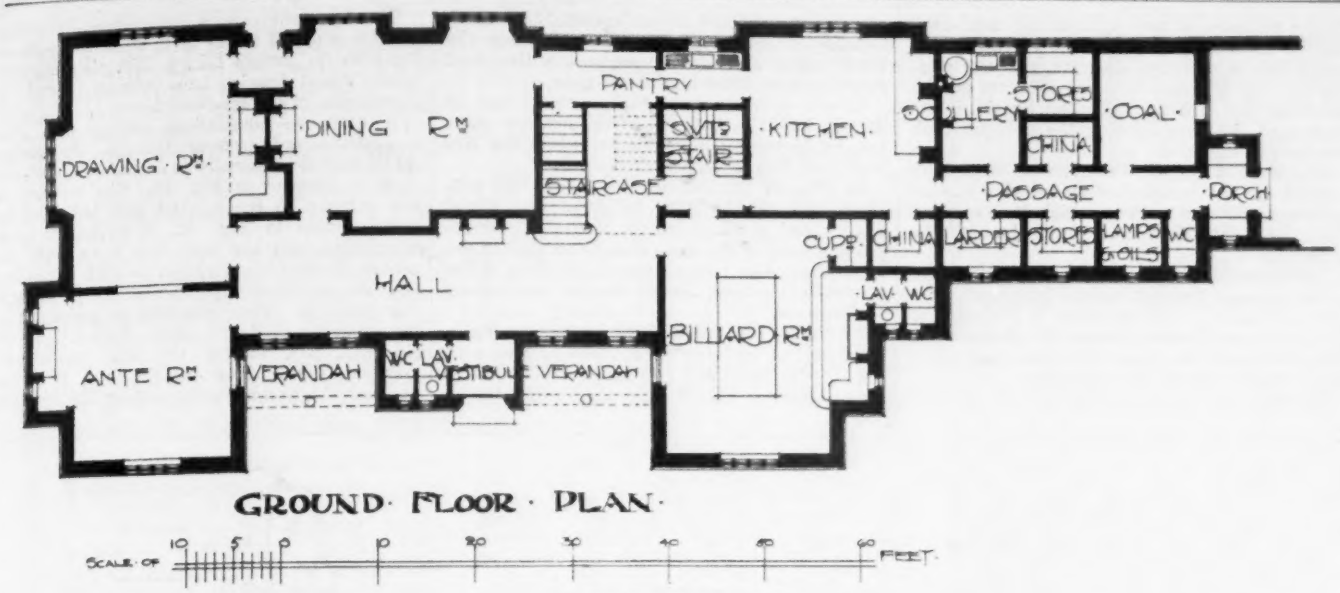
SUGGESTED DESIGN FOR
MEMORIAL TO OLD CLIFTONIANS
WHO FELL IN THE LATE
SOUTH AFRICAN WAR

W^M. L. LUCAS. ARCH^T. INVENT.



PLAN

"HELIO-PHOTO" SPRAGUE & C^O LTD 4 & 5, EAST HARDING STREET, FETTER LANE.



A Country House. Plan.

general contractors were Messrs. W. Nicholson and Sons, of Hunslet, and Mr. R. E. Huggan was clerk of works. Messrs. F. W. Bedford and S. D. Kitson, of Leeds, were the architects.

A COUNTRY HOUSE.

THIS house, designed by Mr. A. H. Crawford, of Edinburgh, was unfortunately not carried out.

It was designed to be built with hand-made red facing bricks, and roofed with dark blue and brown roofing tiles, using the run of the kiln and mixing the various shades.

CHURCH, CLIVE, NEAR SHREWSBURY.

THIS is a perspective of a church designed by Mr. C. J. Ferguson, of Carlisle. Owing to illness, the architect has been prevented from sending us a plan and description to accompany the view.

SCULPTURE: "THREE GENERATIONS."

THIS poetic and suggestive group was submitted by the sculptor, Mr. Leonard Jennings, in competition for the sculpture gold medal at the Royal Academy this year. As far as artistic ability is concerned, in our opinion it merited the medal, and we believe this opinion had supporters within the Academy; but it must be admitted that it does not exactly answer to the idea obviously intended in the wording of the subject given by the Academy:—"Three Generations": viz., figures of childhood, manhood (or womanhood), and age. Mr. Jennings took a more poetic view of the subject, and perhaps this lost him the medal, as the Council were justified in considering that the subject as they put it should be treated, and not a variation on it.

In regard to the intention of the work the sculptor writes:—

"I think perhaps 'The Three Generations of Time' would be a more explanatory title. My intention was an allegory of the Past, Present, and Future. The inscription around the base I think would help the understanding of my work—viz., 'Out of the Present grow the Past and the Future.'

"The groups around the lower part represent the Present, in the front Love, at the back Death, and at the two sides the emotions of Life. All the groups are designed to lead to the figure at the back—viz., Death. Out of the Present grows the tree of generation, bearing the Future as its fruit, and supported by the figure of the Past."

DESIGN FOR WAR MEMORIAL TO OLD CLIFTONIANS.

THIS design, which was exhibited in last year's Royal Academy, was submitted in a limited competition for a memorial to Old Cliftonians who fell in the late South African War.

The instructions to the competitors fixed a site on the terrace separating the quadrangle from the College Close, and stated that the memorial should include, on four sides, panels to receive metal plaques, one a bas-relief towards the Close, one an inscription facing the quadrangle, and two (facing up and down the terrace) to contain the names of those to whose memory the monument would be erected.

The design illustrated shows a monument intended to be carried out in Portland stone. For the plaques on each side, bronze appeared to be the most suitable metal, being a dignified material and valuable both in tone and texture. It was intended that the inscriptions should be in raised letters, gilt on the bronze, thus imparting a certain warmth of colour.

In like manner the bas-relief was to be in bronze similarly treated. It was felt that a symbolical figure such as indicated would be more appropriate to a memorial of this kind than any endeavour to depict, in sculpture, scenes of modern fighting.

The total height of the monument as shown is 25 ft. 8 in. above the general level of the quadrangle; the base occupies a space of about 8 ft. 4 in. square, exclusive of the steps.

Advantage was taken of the difference between the level of the quadrangle and that of the Close to introduce a drinking fountain, easily accessible to those at play, who might thus, by the water of life, be reminded of those who had fallen for their country.

W. L. LUCAS.

COMPETITIONS.

KIRKCALDY SCHOOL BOARD.—The design by Mr. D. Forbes Smith, Architect to the Dysart School Board, has been placed first by the assessor in a competition for an elementary school of two stories to accommodate 1,000 pupils, including cookery and laundry departments, for the Kirkcaldy School Board. The design has been accepted by the Board.

The Student's Column.

ARCHES.—X.

A USEFUL variation of the method described in the preceding article may be applied for the special purpose of finding a line of resistance that will pass through three specified points in an arch.

For the purpose of making matters clear, we will take as an illustration the semi-arch which has already been under discussion, selecting the points a and a', Fig. 49, as those through which the line of resistance shall pass. The first of these points is at the upper limit of the middle third of the crown joint, and the second is at the lower limit of the middle third of joint No. 4. As this semi-arch is of the same dimensions as that shown in Figs. 46 and 47, and is assumed to be under precisely the same conditions of loading, the values and positions of the external forces are those stated in Table I., p. 200.

The method now under consideration is entirely graphical, and the first step is to construct a series of lines representing the resultants of the vertical and horizontal forces by laying off from the point P, as shown in the force diagram, Fig. 50, the vertical forces $w_1 \ldots w_3$, and the horizontal forces $h_1 \ldots h_3$, as explained on p. 229. Then the connecting lines $f_1 \ldots f_5$ represent the directions and values of the resultant forces acting upon the several voussoirs in Fig. 49.

As the load is symmetrical, the crown thrust may be taken, as before, to be horizontal. Therefore, we take any point O′, at a sufficient distance from and horizontally opposite to the point P, and draw radial lines $R'_1 \ldots R'_4$, from O′ to the upper extremities of f_1, f_2, f_3, f_4 respectively. The series of radials need not be continued beyond f_4, because at present we are only concerned with the voussoirs down to the point a' in the required line of resistance.

A tentative equilibrium polygon should next be constructed by drawing through a, in Fig. 49, a line parallel to the line O′ P in Fig. 50. This line must be continued so as intersect f_1 at the point b in the first voussoir. Through the point b draw a line parallel to the radial line R'_1 in Fig. 50, intersecting f_2 at the point c in th esecond voussoir; similarly, from the point c draw a line parallel to R'_2, intersecting f_3 at the point d; from the point d draw a line parallel to R'_3, intersecting f_4 at the point e; and from the point e draw a line $e f$ parallel to R'_4.

Produce the lines $f e$ and $a b$ until they meet at the point r, as shown by broken lines in Fig. 49. Then in accordance with mechanical principles, r is a point on the resultant of the forces f_1, f_2, f_3, and f_4.

It is evident that the portion of the semi-arch between the crown joint and joint No. 4 is in a condition of equilibrium under the action of (1) the horizontal thrust Q; (2) the resultant of the external forces; and (3) the reaction of joint No. 4. As the lines of action of the horizontal thrust Q and of the resultant of the external forces intersect at the point r, and, as the required line of resistance must pass through the point a' in joint No. 4, the line a' r represents the direction of the resultant reaction of that joint.

Now, turning to Fig. 50, we draw the line R_4 parallel to the resultant a' r in Fig. 49. This line commences at the upper extremity of f_4 and intersects the line O′ P at the point O. The line R_4 then graphically represents the reaction of joint No. 4, to the scale already adopted in the construction of the force diagram. The line O P represents the horizontal crown thrust corresponding to the required line of resistance passing through the points a and a' in Fig. 49, and a line drawn from the upper end of f_4 to the lower end of f_1, in Fig. 50, would represent in direction and amount the resultant of f_1, f_2, f_3, and f_4. This line is not shown owing to the small dimensions of the diagram.

Having determined the value of the crown thrust, the force diagram is completed by drawing the lines R_1, R_2, R_3, R_5, R_6, R_7, R_8, and a new equilibrium polygon can be constructed from these lines and the line R_4 previously drawn, in the manner already described. This polygon is shown in Fig. 49. The amount

of the pressure on any joint of the semi-arch can be measured off from the corresponding radial line in the force diagram, and the positions of the various centres of pressure on the joints of the arch are indicated by the intersection of the lines forming the polygon with the lines of the joints.

The method described above can be usefully applied in the determination of the line of resistance for any arch in which it is evident that the joint of rupture must be at the springing.

As the angle of rupture (Article VIII., p. 200) is rarely more than 45 degrees measured from the horizontal, it follows that, if the angular distance from the springing to the crown is less than 45 degrees, the joint of rupture may safely be assumed to be at the springing.

We will now inquire briefly into the method to be adopted for dealing with arches under unsymmetrical loads. Under such conditions of loading it is impossible to directly determine the line of resistance for an arch. The amount, point of application, and direction of the thrust at the crown cannot be known, nor can any satisfactory hypothesis be evolved by which they may be determined, and, further, nothing can be known as to the position of the joint of rupture. It is certain, however, that the crown thrust cannot be horizontal, and that it is not applied at the upper limit of the middle third of the crown joint.

The method described below may be usefully employed to find a line of resistance for an arch under unsymmetrical loading, although it does not indicate which of the many possible lines may be the true line of resistance.

As an example we will take the case of the segmental arch shown in Fig. 51, which is assumed to support an embankment of earth forming a symmetrical dead load over the whole span, and also to support a live load over the right-hand half of the span.

It will be understood that, as explained in Article VIII., p. 200, the earth pressure gives rise to horizontal components, while the live load gives rise to vertical forces only.

In Fig. 51 the curved line above the left-hand half of the arch indicates the actual dead load reduced to an equivalent homogeneous load of the same density as that of the arch ring. This curve is the upper limit of the equivalent loading, and is termed the *reduced load contour*.

Similarly, the curved line above the right-hand half of the arch is the reduced load contour for the dead and live loads. The reduced load contour in Fig. 51 is for the vertical forces, the horizontal and vertical components being laid off in the force diagram, Fig. 52.

The manner in which the load contour may be obtained is explained at the end of this article.

The arch and its loading are divided into eight sections, as indicated by broken lines in Fig. 51, where also are shown the directions of the resultant forces $f_1 \ldots f_8$ parallel to the corresponding lines in the force diagram, Fig. 52.

We will now proceed to construct a trial equilibrium polygon passing through the following three points :—

A, the lower limit of the middle third of the springing joint at the right-hand end of the arch ;

C, the middle of the crown joint ; and

B, the upper limit of the middle third of the springing joint at the left-hand end of the arch.

The force diagram is constructed by laying off the external forces from P in the manner described in Article IX., p. 229, selecting any point O′ and drawing lines between O′ and the extremities of the resultant forces $f_1 \ldots f_8$.

A tentative equilibrium polygon can thus be constructed passing through the points A, C′, and B′, generally in accordance with the method pursued in Fig. 49. The position of the polygon so constructed, and indicated by broken lines in Fig. 52, is evidently quite unsuitable, and the next step is to move the centre of the force diagram to such a position that the equilibrium polygon shall pass through the point B. This operation is performed in the following manner :—First, draw a line A B′ (in Fig. 51), closing the trial equilibrium polygon. Then draw parallel to A B′ a line through the point O′, intersecting the load line at the point N. Now draw (in Fig. 51) a line A B connecting the two extremities of the required line of resistance, and from the point N in Fig. 52 draw a line parallel to A B.

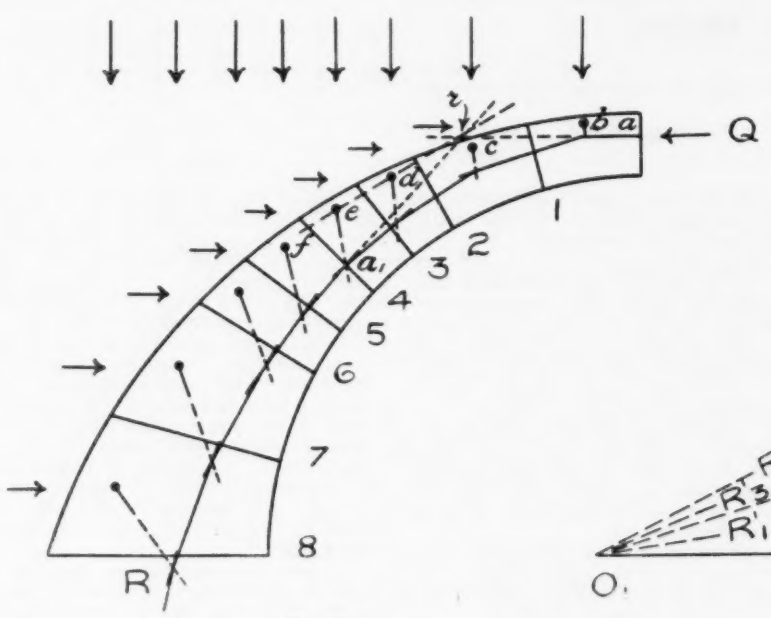


Fig. 49.

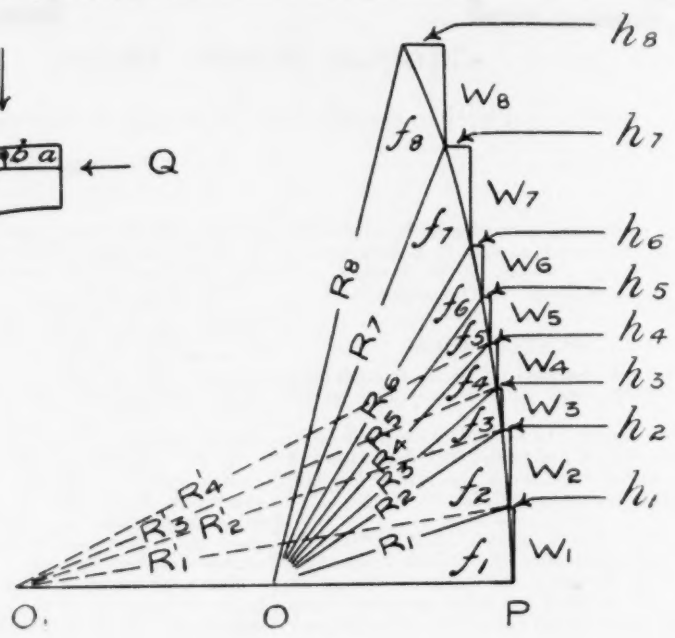


Fig. 50.

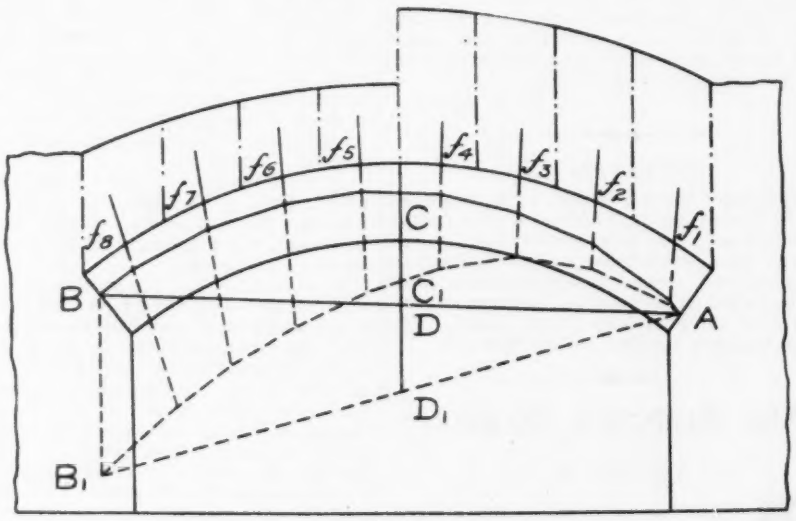


Fig. 51.

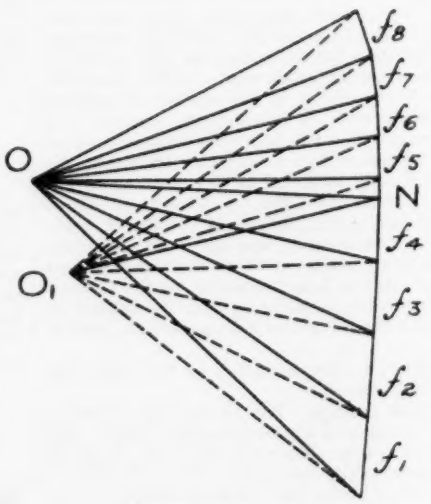


Fig. 52.

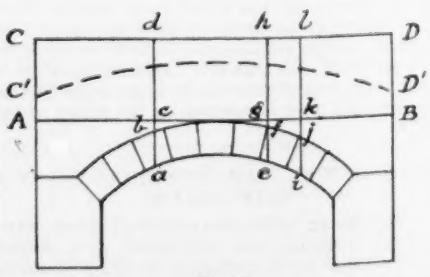


Fig. 53.

The new centre O of the force diagram will be found at a point on this line at such a distance from N that N O : O′ x as C′ D′ : C D, where x is a point on the load line horizontally opposite the point O′.

From the point O so determined draw lines to the extremities of the resultant forces $f_1 \ldots f_5$, and construct a new equilibrium polygon passing through the points A, C, and B in Fig. 51.

If the line of resistance obtained from this polygon does not lie entirely within the middle third of the arch ring, some other positions must be selected for the three points A, C, and B, and a fresh line of resistance must be constructed. If this in turn does not lie within the prescribed limits, it will then be necessary to alter the section of the arch ring, and to make further trials until the desired result is attained.

Before passing on to other theories of the arch, it may be convenient to refer to methods of finding the centre of gravity of the combined weight of a voussoir and the section of the load resting upon it. The centre of gravity of the voussoir itself can be found by the usual mathematical methods, and the centre of gravity of the section of the load resting upon it may be taken as acting through the middle vertical line.

The centre of gravity of the two masses can be determined by the following formula :—

$$x = \frac{w_1 x_1 + w_2 x_2}{w_1 + w_2}$$

where x = horizontal distance from any given point to the vertical line through the centre of gravity of the combined masses ; w_1 and w_2 = the weights of the two masses ; and x_1 and x_2 = the horizontal distances from any given point to the vertical lines through the centres of gravity of the separate masses.

This method can be employed for finding the centre of gravity of any number of masses if the corresponding terms are inserted in the numerator and denominator of the foregoing equation.

Another method of finding the centre of gravity of each voussoir of an arch and its load is that to which reference has already been made so far as the reduced load contour is concerned. The total load, including the weight of the voussoirs, is first reduced to an equivalent homogeneous load of the same density as the arch ring. Any superimposed load can be dealt with by this method, whether entirely of earth or masonry, or partly one and partly the other, and a live load can be treated in a similar manner.

As an example, we will take the arch shown in Fig. 53, where the load consists partly of masonry and partly of earth.

It is required, first, to find the reduced-load contour which gives the upper limit of the equivalent loading.

We will assume the weight of the stone forming the arch ring to be 160 lb. per cubic foot ; that of the masonry backing to be 140 lb. per cubic foot ; and that of the earth to be 100 lb. per cubic foot. Take any point a on the intrados of the arch ring, and draw the vertical line a d, cutting the extrados at b, and the division line between the masonry and earth at the point e.

Then the value of the ordinate at a to the reduced load contour will be :—

$$a\,b + b\,e\,\frac{140}{160} + e\,d\,\frac{100}{160}$$

The value of the ordinate must be calculated and laid off to scale on a diagram. In the present case it suffices for our purpose to take the value as equivalent to a d' in Fig. 53.

Ordinates computed at the points e and i are similarly assumed to possess the values e h' and i l', and ordinates computed at a sufficient number of other points are assumed to give the reduced load contour C′ D′.

Then the area between the intrados of the arch and the load contour is proportional to the total load upon the arch.

If the right-hand half of the arch were subjected to a live load in addition to the dead load, as in Fig. 51, the live load could similarly be reduced to an equivalent load of masonry, and the reduced load contour would then be represented by a higher curve parallel to the right-hand half of the curve C′ D′, as shown in Fig. 51.

The centre of gravity for each voussoir and its load can be found by making a large scale drawing of the arch ring and its load contour ; then, by cutting out the area upon which is represented each voussoir and its load, the centre of gravity can be determined by experiment. The position when thus found should be indicated upon the drawing of the arch.

COURT OF COMMON COUNCIL.

THE usual Court of Common Council was held on Thursday last week at the Guildhall, the Lord Mayor presiding.

Among the petitions received was one from the inhabitants of the wards of Vintry, Dowgate, and others urging the widening of Joiners' Hall-buildings, or Bell Wharf-lane, Upper Thames-street, so that a double line of vans could pass, and pointing out that the present would be a favourable opportunity for effecting an improvement, inasmuch as the premises that would have to be acquired are about to be pulled down and rebuilt. The petition was referred to committee for report.

It was agreed to oppose the following Bills in this Session of Parliament :—Thames River Steamboat Service, Thames Steamboat Trust, East London and Lower Thames Electric Power, Great Northern and City Railway (extension of time), Metropolitan Railway, and Metropolitan District Railway.

On the recommendation of the Streets Committee the amended regulations with regard to projecting lamps, clocks, cranes, boards, and tablets were agreed to. It will be remembered that the amendments were the outcome of a petition of the London Chamber of Commerce and certain makers and users of lamps and signs carrying on business within the jurisdiction of the Corporation.

The Chairman of the Bridges Committee was asked if he could explain how it was that part of the carriageway of London Bridge was being paved in red granite, and the rest in grey granite. The questioner said that he understood that grey granite was the more durable material.

In reply, the Chairman of the Bridges Committee said that it was a fact that part of the bridge was being paved with red granite, but the contract did not specify what colour material was to be used ; it merely said "the best Aberdeen granite."

Replying to a further question, he said that it was hoped that the improvements on the bridge would be completed by March 20, or a fortnight within the contract time.

A report was read from Sir H. Homewood Crawford, the City Solicitor, on the question of the raising of a City Rate for the erection of the new Central Criminal Court.

Mr. Benjamin Turner moved a resolution to the effect that the City Solicitor should be instructed to take the necessary steps to sustain the rights of the Corporation in the matter, and, further, that the Remembrancer should be instructed to promote a Bill in Parliament to remove all doubts as to the rights of the Corporation to obtain a loan and make a rate for the purpose in question.

This was seconded by Mr. Barber and carried.

OBITUARY.

MR. GORDON-SMITH.—We regret to announce the death on February 23, at his residence, No. 5, Oakhill-road, Putney, S.W., of Mr. Percival Gordon-Smith, in his sixty-fifth year, late Architect to the Local Government Board. Mr. Gordon-Smith was elected an Associate of the Royal Institute of British Architects in 1866, and a Fellow in 1879, and he served for a while as a member of the Council. He was also a Fellow of the Surveyors' Institution. Mr. Gordon-Smith entered the service of the Poor Law—since the Local Government Board under Christopher Wren Savage, whom he eventually succeeded as Architect to the Board, and retired after about forty years' service in June, 1901, being succeeded by Mr. Brook Taylor Kitchin. He acted on several occasions as assessor or professional adviser in some important competitions, amongst them being those for the Cameron Memorial Accident and General Hospital at West Hartlepool, the St. Mellon's Infectious Diseases Hospital, and the Chorlton and Manchester Joint Asylum Committee's Colony for Inebriate and Epileptical Patients at Langho. In February of last year he acted as adviser to the Infirmary Committee of the Newark Board of Guardians upon the competitive plans submitted for the extension buildings of the Newark Infirmary. In the competitions we cite his recommendations and awards were severally adopted. Shortly after his retirement from the Local Government Board, Mr. Gordon-Smith brought out a work entitled "Hints and Suggestions as to the Planning of Poor Law Buildings, etc.," published by Messrs. Knight and Co. After the death of Mr. Arthur Cates, Mr. Gordon-Smith was elected in May, 1902, to fill the vacant seat on the board of directors of the Architectural Union Company.

MR. BEVAN.—We have also to announce the death at Brislington of Mr. John Bevan, of No. 1, St. Stephen's Chambers, Baldwin-street, Bristol, aged sixty years. Mr. Bevan had practised in Bristol for a period of from thirty-five to forty years, and was architect of several churches in that city and the neighbourhood, including those of St. Francis, at Ashton-gate, Bedminster, in 1889, and St. Alban, in the same locality, in 1885. He designed the new nave for the Church of St. Michael and All Angels in Bedminster, and carried out the alterations and repairs, with new roofs and redecoration, of the Church of St. Andrew in Montpelier, Bristol, twenty years ago.

MR. J. D. COOPER.—On Saturday last there passed away the veteran wood-engraver, James Davis Cooper, at the advanced age of eighty-one. Educated at the City of London School, he, at an early age, became the pupil of Whymper, and rose quickly to the head of his profession. Ever keen to recognise what was beautiful and good in art, he has been often the first to give the helping hand to struggling artists, whose names are now well-known. With him also originated the idea of blending illustration and type—the first example of which, Mrs. Barbauld's Hymns in Prose, was brought out in 1863, by Mr. Murray. He, struck by the beauty of "Washington Irving's" writings, planned to illustrate, after the same manner, "Old Christmas," and "Bracebridge Hall," and in this way so ably assisted the late Mr. Caldecott in his pen and ink designs. These were published by Macmillan and Co. His work brought him in contact with some of the most famous men of the day, and caused his name to be connected with those of Darwin, Huxley, Tyndall, Owen, Nasymth, Livingstone, Stanley, Nansen, and many others, in their books. Mr. Cooper had also the distinction to be frequently selected by Her Majesty, the late Queen Victoria, to engrave for her books such as "Our Life in the Highlands," also for "The Prince of Wales' Tour in India." Some eighteen to twenty years ago Mr. Cooper engraved several important plates for this journal, which were in the highest style of wood-engraving, and were among the best executed architectural illustrations that have ever appeared in our pages ; we may mention especially one of Keble College Chapel, and one of a fine Mairie, one of the Paris arrondissements. The introduction of Process was practically the death-blow to wood-engraving, and this, added to his failing eyesight, caused him to retire from work some years ago. His intellect remained unclouded to the last, and his wonderful memory of all that was worth recording in an eventful life, combined with his charming old-world manners, made up a personality difficult to replace.

GENERAL BUILDING NEWS.

CHURCH OF ST. MARY, AUGHNACLOY, DIOCESE OF ARMAGH.—The foundation-stone of this building was laid on the 28th ult. The church is in the Romanesque style, freely treated, and following such native types as are found in the round-arched work at Jerpoint Abbey, co. Kilkenny, and the still earlier examples at Melifont, Glendalough, and other ancient remains. The detail of ancient Irish work was, however, deemed to be of too archaic a character for literal adoption, and the great Lombardic churches of Northern Italy have suggested the general treatment of the detail. The work has been chiefly concentrated in the west front. A massive tower surmounted by a copper-domed cupola shows on the principal façade of the church. The principal feature of the west front is the central doorway, deeply recessed in successive orders of moulded arches carried on circular shafts with carved capitals of Italian character and moulded bases. Over the chief entrance is a circular rose-window, in the centre of which will be a carved-stone representation of the Crucifixion. The church consists of nave, aisles, and a circular apsidal chancel, and two sacristies. Transepts are avoided in order to realise a plan where all can see the officiating priest. The desirability of a large uninterrupted floor-space near the altar has been kept in mind. The organ gallery is not provided in the present scheme, but it will be placed in the western end of the nave, over the principal entrance. The entire church will provide seating accommodation for some 500 persons, while if the nave only were seated, and the aisles used for standing space, the accommodation would be raised to about 800 or more without crowding. The church is well lighted from every side. A heating chamber is placed under the sacristies. Irish, and as far as possible local, materials are being used throughout. For the facing and general walling the local freestone cannot be surpassed for appearance and durability. It has been sought to gain effect by the good

proportion of well-studied masses rather than by the elaboration of ornamental detail. The joinery work is all of the simplest character, the roofs being covered by timber barrel vaults of strong and plain construction. The church is being erected by Mr. Robert Cullen, builder, Portadown, from the designs and under the supervision of the architects, Messrs. Doolin, Butler, and Donnelly, of Dublin.

RESTORATION OF BASSALEG CHURCH, MONMOUTHSHIRE.—The Church of St. Basil at Bassaleg, near Newport, which had been closed for worship for over twelve months during a period of thorough restoration, has just been reopened. The church has been much altered from time to time; in fact, nearly every vestige of the original building has been swept away. The tower is, nevertheless, intact, and the original chancel walls remain, although modern windows have been introduced. The tower is a fine example, and has been restored by public subscription. The restoration includes re-building of the top portion, pointing the walls, restoration of windows, etc., new lead flat, re-hanging of the bells, with the addition of a chiming apparatus, new floors, new west door, removal of organ, and the opening out of the fine old arch between tower and nave, filling in this with a rich oak screen, thus forming a choir vestry in the lower portion of the tower. The clock works have also been repaired and fixed in a more suitable position. The roofs of the nave, south aisle, vestry, and Lord Tredegar's pew and vault have been repaired and reslated, the nave roof lifted to its original height, and the interior of the nave and aisle boarded and formed into panels with moulded ribs. A new organ-chamber has been added at the east end of the aisle, and the organ removed from the west end of the nave into it, the choir being formed in front of it, facing north. A new heating-chamber was built on the north side, and a hot-water apparatus on Musgrave's latest principle fixed. New decorated fret-lead glazing has been put in all the windows, and a new painted window fixed on the north side of the nave to the memory of Captain Homfray, by Savell, of Albany-street, London, who also supplied the glass. The flags in the passages were all taken up and re-laid on concrete in cement, and the walls have been decorated in a warm buff colour, with ornament in venetian red. The Commissioners restored the chancel, which included the re-building of a portion of the walling and a new oak roof, etc. The work was carried out by Messrs. Shepton and Son, of Cardiff, from designs and under the supervision of Mr. C. B. Fowler, F.R.I.B.A., of Cardiff.—*Western Mail.*

PRESBYTERIAN CHURCH, OLDPARK, BELFAST.—The memorial-stones in connexion with the new church which is being built on the continuation of the Cliftonville-road to Oldpark were laid recently. The plan comprises a nave of 90 ft. in length, with galleries and shallow transepts. The latter, with 30 ft. of the nave, will be used at present as a school and lecture hall. The main front will have a square tower, with heavy buttresses, surmounted by a battlemented cornice, with brick spire above, rising to a height of 110 ft. above street level. The contractors for the entire work are Messrs. W. J. Campbell and Son, and the architects are Messrs. Young and Mackenzie, Belfast.

SYNAGOGUE, BELFAST.—The Lady Mayoress of Belfast (Lady Jaffe) laid the foundation-stone of a new Jewish Synagogue for the Hebrew congregation of Belfast. The new building will occupy a site about 90 ft. by 50 ft., in Annesley-street. The plan comprises a porch and vestibule at the west end, giving access to the synagogue, which is 75 ft. long by 37 ft. wide. The synagogue will accommodate upwards of 350 persons, with a gallery to hold 200 in addition. Messrs. James Henry and Sons are the contractors, and Messrs. Young and Mackenzie the architects.

BOARD SCHOOLS, CRAYFORD.—New schools, to be called the North End Schools, have just been completed, and will shortly be opened. The schools are built with a wide corridor for assembling the children, instead of a central hall, and provide accommodation for 300 children in two departments, with provision for future class-rooms to accommodate 100 children. There are separate entrances for boys, girls, and infants. The buildings throughout have been built with yellow stocks and red-brick dressings, and Box ground stone for copings, cornices, and dormers. The class-rooms internally are lined with salt-glazed brick dadoes, and are heated by warm-air grates, with low-pressure hot-water pipes and radiators to hat and cloak rooms and corridors. Covered playsheds are provided for girls and infants, and also in the boys' playgrounds. The cost of the schools is 5,358*l.*, including playgrounds, boundary-walls, and fencing to a site of 1½ acres. The architect is Mr. C. L. Morgan, of London, and the builders Messrs. Friday and Ling, of Erith.

SCHOOL, MEXBOROUGH.—On the 29th ult. a new school was opened in Mexborough. Mr. G. White, architect, gave a few particulars as to the new buildings. The accommodation is for 320 mixed scholars, and the total cost, including furnishing, etc., 3,801*l.*

INFECTIOUS DISEASES HOSPITAL, CONISBOROUGH.—The new Infectious Diseases Hospital, which has been built at Conisborough by the Doncaster and Mexborough Joint Hospital Board, is situated in Common-lane, at Conisborough, about three-quarters of a mile from the railway station. The buildings consist of an administrative block, comprising rooms for the use of the medical officer, the matron, and the nursing staff, with kitchen and store accommodation. This block is more than sufficient to meet the present requirements, and it has been built with a view to future extension of the wards. The scarlet fever block consists of male and female wards, with two special wards containing one bed each for paying patients, with convalescent room over the central portion, provided with nurses' the central portion, provided with nurses' room, bathroom, and sanitary accommodation. There is also typhoid block with similar accommodation, and an isolation block for doubtful and other infectious cases. The laundry and boiler-house block contains a washhouse fitted with the usual appliances for washing by machinery, an ironing room with fan ventilating drying closet, and a disinfecting chamber fitted with Thresh's disinfector. There are also a mortuary, stable, and ambulance sheds. A boiler-house is provided, containing two boilers which supply steam for the laundry, hot-water apparatus for heating the wards, hot-water supplies to all the baths and lavatories throughout the buildings, and for working the electrical plant. The ward blocks are all furnished with glass verandahs in the front, having a south aspect for the use of convalescents. The buildings are illuminated by electric light. The buildings at present provide for the treatment of thirty-six patients. Messrs Harold Arnold and Son, of Doncaster, were the contractors, Mr. J. H. Morton, of South Shields, the architect, Messrs. Benham and Sons, Ltd., of London, sub-contractors for the engineering. The clerk of the works was Mr. Fred Simpson, of Doncaster.

WEST RIDING ASYLUM, STORTHES HALL, HUDDERSFIELD.—It is expected that early next month the initial part of what is ultimately to be a great asylum on the Storthes Hall estate will be opened for occupation. The finishing touches and equipment are now being put to a set of buildings to accommodate acute cases of lunacy. These premises have been designed for the West Riding County Council by Mr. J. Vickers-Edwards, the County Architect. The estate is situated about five miles to the south-east of Huddersfield, and comprises an area of 629 acres, of which 261 acres are woods and plantation. Included in the purchase is a roomy and well-built mansion, together with farm buildings, cottages, timber, and minerals, none of the latter having been removed. Good quantities of stone have been found on the estate for foundations and concreting. A fine supply of water is also at hand. The water-works undertaking is now completed and in working order. It consists of a small receiving reservoir, from which water is pumped to an altitude of 800 ft. by motor power to the large circular reservoir, with a capacity of 1¼ million gallons. The first contract in connexion with this Asylum was let to Messrs. John Radcliffe and Sons, builders of Huddersfield, on August 15, 1900, for the sum of 105,900*l.*, and consists of an Acute hospital for 20 cases and two cotage homes for workers, accommodating thirty-five cases each. The next contract was let to Messrs. Nicholson and Son, of Leeds, on November 1, 1901, for the large laundry, boiler-house, engine-room, chimney-shaft, and laundry residence, at a total cost of 44,531*l.* The laundry residence is for those who are working in the laundry, it being desirable that patients who work there should have a distinct and separate residence to themselves. The residence will provide accommodation for fifty cases. These works are also completed. The last contracts were let to Messrs. John Radcliffe and Sons for a residence for the medical superintendent, a reservoir and pumping station, and a lodge for the main entrance (at a total cost of 16,062*l.*), which are practically finished. For the supply of boilers and steam plant the contract was let in May, 1902, to Messrs. Ashwell and Nesbit, of Leicester, at the price of 9,300*l.* The contract for the electric lighting of the institution was let to the Walsall Electrical Company, of Liverpool, in January, 1902, at 5,100*l.* The furniture and fittings for the Acute block, etc., have been supplied by Messrs. Christopher Pratt and Sons, of Bradford, for 7,934*l.* 10s. 8d. The laying-out of the grounds is nearly complete; it has been done under the supervision of the County Architect. In addition, the committee have instructed their architect to push on with the first section of the larger institution, and to provide accommodation for 600 more cases, and the plans are practically completed. When this work has been let further drawings and contracts will be prepared to bring the institution up to the full complement. It is proposed ultimately that this Asylum shall contain accommodation for upwards of 2,000 cases, which, taking into consideration the officers, attendants, nurses, and artisans, will probably mean a total population of 2,500.—*Yorkshire Observer.*

HOMŒOPATHIC HOSPITAL, TUNBRIDGE WELLS.—The annual meeting of the governors and subscribers to the Tunbridge Wells Homœopathic Hospital was held at the institution recently, when the opportunity was taken of opening the new hospital building at Silwood House, Church-road. The work of remodelling the existing rooms and designing the new premises built on to them was entrusted to Mr. C. H. Strange, architect. The hospital now comprises men's and women's wards in the old part of the building, and a large ward and operating theatre in the new part. These rooms, with the ward kitchen, bathroom, charge-nurse's room, and conveniences, are all on the first floor, compactly grouped for convenient administration and oversight. The wards all face south or west, and overlook the grounds and Common. There is also a private ward on the ground floor, where are situated the matron's room, staff dining-room, kitchens, etc. On the second floor are the matron's, nurse's, servants', and caretakers' bedrooms, bathrooms, store-rooms, etc. A patient's lift is placed next to the entrance, and a service lift runs from the basement through all the floors. The building is lighted throughout by electricity, with an auxiliary gas service for emergencies, and heated by low-pressure hot water. There is an iron fire-escape stairs from the top and first floors leading to the grounds, and there are hydrants and other fire appliances disposed in different parts of the building. The outpatients' department is entirely separate, and comprises a large waiting-room, two consulting-rooms, dressing-room, dispensary, etc. The amount expended in building operations has been about 2,250*l.*, and the general contractors were Messrs. Strange and Sons.

BUSINESS PREMISES, DERRY.—Business premises have been erected for Messrs. Roxborough and Co. in Ferryquay-street, Derry. The new building stands on an area of 40 ft. by 56 ft., and it is three stories high. The ground floor is to be used as a provision-shop and warehouse, while the upper floors are intended for offices. The plans for the work were prepared by Mr. R. Eccles Buchanan, and were carried out by Messrs. Joseph Ballintine, Ltd., under the superintendence of Mr. James Simpson.

THEATRE, GLASGOW.—The Glasgow Pavilion Palace of Varieties has just been opened. The new theatre, which is situated at the junction of Renfield and Renfrew streets, has been erected to the designs of Mr. Bertie Crewe, of London. Its main elevation, which is towards Renfield-street, between Sauchiehall-street and Renfrew-street, is in salmon pink terra cotta, treated in the style of the later French Renaissance. The total seating accommodation will accommodate 2,500 persons.

APPOINTMENT.

ARCHITECT TO THE BOARD OF EDUCATION.—The appointment of Mr. Felix Neville Clay as Architect to the Board of Education is announced in the *London Gazette* of March 1. The appointment of Mr. E. R. Robson as Consulting Architect to the Board terminated on September 30, after he had served nearly nineteen years in that capacity. In reply to a question asked in the House of Commons on August 11 of last year upon the matter of Mr. Robson's enforced retirement, the Secretary to the Board stated in the course of his reply—"No question of the competency of Mr. Robson is involved. The Board of Education are making new arrangements to meet new conditions."

MISCELLANEOUS.

THE PYX CHAPEL.—Sir Benjamin Stone has addressed the First Commissioner of Works as to what are the intentions of the Government as to the future uses or disposal of the Pyx Chapel now that it is no longer occupied by a department of the Government, and if it is contemplated making any alterations which will interfere with its venerable and architectural character. Lord Balcarres has replied that the First Commissioner of Works is anxious to give effect to the assurances of his predecessor by giving the public reasonable facilities of admission to the Pyx Chapel. In order to do this it will be necessary to light the Chapel; it is proposed to do so by means of plain standards with electric light, so as to

avoid any injury to the ancient walls and vaulted roof. The greatest care is being taken not to make any alterations which might interfere with the architecture.

NOTTINGHAM MASTER BUILDERS' ASSOCIATION.—The annual dinner of the Nottingham Master Builders' Association took place recently at the Albert Hotel, Derby-road. Mr. F. H. Fish (President) occupied the chair, and Mr. J. Wright (Hon. Secretary) the vice-chair. Amongst those present were the Mayor (Councillor A. Page), Messrs. E. R. Sutton (Nottingham Architectural Society), E. Fox (Leicester Master Builders' Association), J. Dickinson and R. Weston Frost (Derby Master Builders' Association), A. E. Tallis (Secretary National Federation Midland Centre), T. Munks and H. Rainbow (Nottingham branch Master Painters' Association), G. S. Fish, T. Fish, jun., E. P. Bartlett, A. W. Smith, W. Edgar, William Hall, jun. S. Thumbs, E. Hind, H. Vickers, Jevons, W. Crane, E. Burge, W. C. Hickson, J. J. Spencer, James Wright, Councillor John Wright, W. Maule, F. Cree, R. Simpson, F. Quarton, F. Messon, H. Cutts, C. Walker, W. Warburton, G. A. Pillatt, H. Bowers, A. Priestley, L. Priestley, J. Shaw, Andrews, J. H. Vickers, C. P. Shaw, J. Carr, T. Flewitt, J.P., E. A. Pyatt, E. A. Cooper, J. H. Lindley, Shepherd, W. Appleby, S. Ward, T. Long, J. Marchant, Burton, J. Saxby, W. R. Wibberley, F. Harvey, A. Taylor, Pask, Morley, Thorpe, Adkins, and W. J. Barton (Secretary). The loyal toast having been given from the chair and suitably honoured, Mr. Vickers proposed "The Mayor, Magistrates, and Corporation of Nottingham," and said they were pleased to see the Mayor present. The Mayor acknowledged the toast. Mr. W. Edgar proposed "The Architects" and Messrs. E. R. Sutton and W. C. Hickson replied. Mr. E. Fox proposed "Success to the Federation and the Nottingham Master Builders' Association," to which Mr. J. Dickinson and the son and the Chairman replied. Other toasts followed.

PLUMBERS AND PUBLIC HEALTH.—At a recent meeting of plumbers held in Birmingham, Mr. E. Antony Lees, Secretary to the Water Department, in referring to the change in the water-fittings in the City that might be required when the soft water from the Welsh mountains took the place of the hard water now in use, said that as a water engineer he was more interested in the improvement of plumbers as craftsmen than in the financial prosperity of their trade, but he recognised that the two things were bound up together, for they could not have skilled craftsmen in a trade unless that trade brought them an adequate reward. He believed that they were as much concerned as were the City officials in improving the quality of plumbing work, which was so important from a sanitary point of view. He was glad to know that they were interesting themselves in the proper training of youths who were brought into the trade, and were doing what they could to get rid of cheap and nasty plumbing. If they must have cheapness, it should be obtained by skilled work and industry rather than by doing slipshod work and using inferior material. Whatever the result might be, an honourable workman would always leave his work in such a state that no evil result would follow it. The time would come when the public would insist on only such men being employed, and it would be their duty to see that they were adequately paid.

ART INDUSTRIES EXHIBITION, DUBLIN.—The Royal Dublin Society has just issued the list of prizes, amounting to 250*l.*, to be offered at the Art Industries Exhibition in August next. The Exhibition will be held at Ball's Bridge, Dublin, in conjunction with the Irish Horse Show, and will include sections for the following Irish art industries:—Lace, embroidery, tapestry-weaving, wood-carving, artistic leather work, artistic metal work, pyrography and stained-wood work, artistic enamelling, illuminating, stained-glass work, modelling for ornamental plaster work and designs. Hitherto the great obstacle to the development of this useful Exhibition has been the want of space owing to its being held in conjunction with the annual Horse Show, which taxes the resources of the Society to their utmost. The great Irish Horse Show is usually visited by about 60,000 persons, and accordingly it affords a very favourable opportunity for bringing the Irish industries prominently under the notice of the British and American public, and for the sale of the exhibits. The Committee, recognising these great advantages, continued holding the Exhibition in conjunction with the Horse Show, though the space at their disposal was thus extremely limited. The Royal Dublin Society has now decided to erect a special hall at Ball's Bridge for this Exhibition at a cost of about 5,000*l.* The hall is in course of erection, and will be completed in time for the Exhibition in August next. It will have a floor area of upwards of 11,300 sq. ft., and will be fitted with glass show-cases, etc., so that there will be ample space for effectively displaying the exhibits. In almost all departments of the Exhibition there are sections for both amateurs and professionals, and artisans and apprentices are also eligible to compete. All information may be had on application to the Registrar, Royal Dublin Society, Leinster House, Dublin. The Exhibition is essentially an Exhibition of Irish Art Industries, and (as is stated in one of the rules) each competitor must be resident in Ireland.

PEABODY DONATION FUND.—The thirty-ninth report of the Peabody Donation Fund shows that the net gain of the year, from rents and interest, has been 35,090*l.* 11s. 3d., as shown by the accounts, this return being 2·52 per cent. on the capital of the Fund, against 2·40 per cent. last year. The capital expenditure on land and buildings to the end of the year was 1,370,367*l.* 1s. 11d. The repairs, which include extensive drainage alterations at Westminster and Clerkenwell, amount to 13,115*l.* 12s. 2d. At the end of the year the Governors had provided for the artisan and labouring poor of London 11,918 rooms, including those occupied by the superintendents and porters, besides bathrooms, laundries, and lavatories. These rooms comprised 5,387 separate dwellings, viz.:—101 of four rooms, 1,828 of three rooms, 2,572 of two rooms, and 886 of one room. Eighty-two cottages of five rooms each are in course of erection at the Herne Hill Estate, and it is hoped that some of them will shortly be ready for occupation. During the year the Governors have purchased a site of about 4¼ acres situated at Lordship-lane, Tottenham.

CLERKS OF WORKS' DINNER, BRISTOL.—The eleventh annual dinner of the Bristol Clerks of Works and Builders' Foremen's Association was held on Saturday at the Royal Hotel. The Chairman (Mr. A. P. I. Cotterell, F.S.I.) presided, the vice-chairs being occupied by Messrs. H. J. R. Davis and E. Turner.—Mr. T. S. Cotterell, J.P., in response to the toast of "Trade and Commerce," said that the building trade in Bristol at the present time was very prosperous. There was also the great work at Avonmouth now progressing. They all hoped to see the Corporation of Bristol erect suitable municipal buildings as a great centre.—Mr. F. W. Wills, F.R.I.B.A., said his experience concerning the foremen of carpenters was that they strove to do their very utmost. That Association was growing. Those who were in positions and were leaders should do their best to be practical as well as professional. Every man should strive to get to the top of the tree. If every man did that they would turn out a better class of work.—The Chairman, in proposing the toast of "The Association," said he saw by the report that they were a company of between forty and fifty. The Association was very useful, if not for defence purposes, for educational purposes. Each one doing his best ought to be able to do much—better than their fathers did. He had had the pleasure of working with good men, and could see how they had got on.—Mr. H. J. R. Davis, in reply, said the Association was progressing very favourably, and the library now connected with it was found very beneficial.

POMPEII BY NIGHT.—To accede to a request which has often been made by the travelling public, Pompeii is now (according to a communication received at the British Foreign Office from Mr. Consul-General Neville-Rolfe) to be opened on moonlight nights. In order to secure this privilege notice must be given before noon on the day of the visit. There is now an excellent hotel at the entrance to the excavations, so that there is no need to return to Naples the same night. The price of entrance to the ruins at night will be 4 lire per head, as against 2 lire, which is the charge in the daytime, and it is stated that there is no risk of contracting malaria in a night visit.

THE NEW BUILDINGS FOR THE DUKE OF YORK'S ROYAL MILITARY SCHOOL.—Lord Windsor has deposited a short Bill on behalf of the Government which sets forth that land has been purchased in the parish of Guston, Kent, for the purpose of erecting thereon buildings for the Duke of York's Royal Military School. The lands are subject to certain rights of way and cannot be used unless such rights are extinguished. The object of the Bill, therefore, is to extinguish all such rights of way.

DORIS MEMORIAL, DEVONPORT.—A memorial has been erected in Devonport in memory of the men of H.M.S. *Doris* who fell in the late war, and it consists of a base of grey Dartmouth granite upon which a pompom captured from the Boers has been placed. The monument has been executed by Messrs. Harry Hems and Sons, of Exeter, under the direction of Mr. J. F. Burns, the Borough Surveyor.

BRIGHTON MASTER BUILDERS' ASSOCIATION.—On the 1st inst. the eleventh annual dinner of the Brighton Master Builders' Association took place at the Hôtel Metropole, the Chairman (Alderman W. Botting, J.P.) presiding.—After the loyal and patriotic toasts, Mr. G. S. Godfree gave "The Corporations of Brighton and Hove." He noticed that the jubilee of the incorporation of Brighton was to be celebrated this year, and he congratulated the Mayor upon being in office on such an interesting occasion. He was surprised to see on the agenda, a notice of motion in support of a project for bringing the trams down the Marine-parade. He was bitterly opposed to trams on the front, and he had no doubt as to what action the Council would take.—The Mayor, in reply, touched lightly on the principal undertakings of the Corporation, and, alluding to the proposal to run trams along the Marine-parade, said it would be debated, and he really felt that the inherent good sense of the Council would prevent what, to his mind, would be such a disastrous thing as that coming to pass.—The toast of the evening, "The Association of Master Builders," was proposed by Mr. J. K. Nye. He was pleased, he said, that for some time past there had been peace and goodwill between them and their workmen. In connection with the Association, he could not forget that, acting on an excellent suggestion of their Chairman, they formed an Insurance Society. The pitfalls and responsibilities they had under the Workmen's Compensation Act were such that the members should congratulate themselves upon having at their back an excellent insurance fund, which was now represented by several thousand pounds. The membership of the Association was, he understood, well maintained, nearly every local firm being represented in it.—The Chairman, in reply, recalled the circumstances of the strike which led to the formation of the Association twelve years ago, and said that they put their foot down then and had ever since been on the best of terms with their men, who, he believed, appreciated them vastly more than they did before. The decision of the House of Lords in 1901, that trade unions were responsible for the action of their agents, had been of great help to them. Since then the trade unions had been very cautious. With regard to their Insurance Association, they started with very small funds, but their claims did not amount to more than 150*l.* a year, and they had been able to carry forward a very handsome balance every year since its formation in 1898. At this moment they were in possession of very nearly 7,000*l.* to meet any claims that might be made upon them, and in the near future he believed they would be able to reduce the premium 50 per cent.—The remaining toasts were "The Visitors," given by Mr. T. Garrett, and acknowledged by Mr. W. Balchin; "The Chairman," and "The Vice-Chairman."

HORSELL SEWERAGE SCHEME.—A scheme for the sewerage and sewage disposal of Horsell, Surrey, has been prepared by Messrs. Elliott and Brown, of Nottingham. It is proposed to purify the sewage by means of septic tanks and percolating filters, the effluent being finished off by filtration through land. The cost of the works is estimated at 19,676*l.*

WAR MEMORIAL, YORK.—The York Corporation propose to erect a roll of honour, on which the names of all York men who volunteered for active Service during the South African war are to be inscribed, in the Guildhall, and the City Engineer has been requested to prepare a design. It is also proposed by a Committee representing the county to erect in York a memorial to all Yorkshiremen who were killed, and the York Corporation has been applied to for permission to erect it on a site near St. Michael-le-Belfrey Church. The monument will take the form of a Queen Eleanor Cross, and has been designed by Mr. G. F. Bodley, A.R.A.

THE UNITED KINGDOM AND EGYPTIAN TRADE.—In an exhaustive review of the trade and finances of Egypt for the years 1887-1902, Mr. Horace Rumbold, Second Secretary in H.M. Diplomatic Service at Cairo, mentions incidentally that the share of the United Kingdom in the imports of stones, earths, earthenware, glass, etc., which was about one-sixth during the quinquennial period 1887-91, bore much the same proportion in 1902. Most of the cement imported in bags comes from the United Kingdom, whilst Belgium supplies the cement in barrels. The United Kingdom also supplies a certain amount of china and earthenware. Italy sends all the marble and paving-stones, and in view of the great amount of building going on throughout Egypt, her trade under this head is likely to increase. The most striking feature is the amount of the Italian import, which has nearly quadrupled in the last sixteen years. Belgium supplies all the window-panes, and that country, France, and Germany divide the trade in china and earthenware in fairly equal proportions.

CAPITAL AND LABOUR.

SOUTHPORT MASONS' STRIKE.—The Mayor of Southport (Councillor F. W. Brown) has been requested by the parties in the strike of masons at Holy Trinity Church rebuilding to act as arbitrator. As a result of the agreement, deputations representing the contractor and the men waited upon the Mayor and presented their case. The Mayor intimated that he would carefully consider the evidence submitted before giving his decision, which both parties have agreed to accept as final.

Legal.

CASE UNDER THE 1894 LONDON BUILDING ACT.

COGGIN *v.* DICKESON.

THIS case, which was heard before Mr. Francis at the South-Western Police Court, Lavender-hill, S.W., recently, raised the question whether the alteration of a shop-front to suit a tenant was a work in respect of which a notice should have been given to the District Surveyor under section 145 of the above Act.

Mr. Caudwell appeared for the plaintiff, Mr. Clarence T. Coggin, the District Surveyor, while the defendant, Mr. John Dickeson, appeared in person.

The facts of the case were as follows:—The defendant was the owner of a house and shop, No. 74, St. John's-hill, New Wandsworth, and on reletting the premises to a new tenant, he took out the old and put in a new front to suit such tenant. It was admitted that such alteration was not a work of necessary repair. Mr. Caudwell contended on behalf of the plaintiff that the case was of one in which a notice ought to have been given, and referred to sections 138, 209, 145, 146, (11) (b), and 73 (3) and (4).

The defendant's defence was that no notice was required on the mere alteration of a shop front.

The Magistrate gave judgment for the plaintiff, and stated that it seemed to him the case came clearly within the provisions of the Act relating to building notices, and he ordered the defendant to pay 2s. 6d. fine with 12s. 6d. costs.

THE MARYLEBONE BOROUGH COUNCIL AND ITS ELECTRICAL UNDERTAKING.

MR. JUSTICE BUCKLEY in the Chancery Division on the 25th ult., heard a motion in the action of the Metropolitan Electric Supply Co., Ltd., *v.* the Marylebone Borough Council, by which the defendants asked for an extension of time in which to complete the purchase of that part of the plaintiffs' undertaking which is situate in Marylebone.

Mr. Buckmaster, K.C., and Mr. Clayton appeared for the Borough Council, and Mr. Cripps, K.C., Mr. Astbury, K.C., and Mr. Sergeant for the Company.

Mr. Buckmaster said that the Council obtained statutory powers to purchase the undertaking, and the arbitrator fixed the price at 1,212,000*l.*, but the Council's Bill only gave them power to borrow money with the consent of the London City Council. On August 7, his lordship made a decree for specific performance of the contract by December 31, giving the Borough Council liberty to apply for an extension of time. The London City Council would not sanction the raising the money by loan, and the Borough Council was left with the alternative of levying a rate for the whole amount on the inhabitants which was impossible, or to go to Parliament for power to borrow. On December 11, the Court enlarged the time for completion till February 29. The Council's Bill in Parliament had passed the second reading. Under the order of August 7, the Council was held liable to pay 67,250*l.* for capital expenditure incurred from the date of the arbitration, and as a term of the extension of time the Council was ordered to pay the Company 60,000*l.*, and some other sums, and the Company had to receive interest at the rate of 4½ per cent. on the balance. The Council had handed the Company the 60,000*l.* In order that the Bill might receive the Royal assent before a further application was made, defendants asked for an extension of time for completion till August 31, but plaintiffs wished to impose as a condition that a further sum of 27,500*l.* in respect of capital expenditure should be paid to them. It would be an exceedingly difficult thing for the defendants to raise that money. The learned counsel said that in these circumstances the defendants would prefer taking an extension of time till April 30, and suggested that 10,000*l.* would be a reasonable payment to make.

Mr. Cripps said that the Company would assent to anything that his lordship thought was right.

At the conclusion of the arguments of counsel, Mr. Justice Buckley, in giving judgment, said he was sorry he could not disconnect the ratepayers and the Borough Council. For the former he had great sympathy as they had been saddled with a burden through no fault of theirs. He was desirous of relieving them if it was possible. He had no sympathy with the Borough Council as they had entered into obligations which fell on other persons. Judicially, however, he could only consider the Council. The question was what was a fair figure for the Council to pay as a term of their having a further extension of time to complete. Having regard to the evidence as to expenditure, he found the sum to be 20,000*l.*, but he asked the plaintiffs to accept 15,000*l.*

Mr. Cripps said that the plaintiffs would accept 15,000*l.*

Mr. Justice Buckley said that that being so he would extend the time for completion until April 30 on the term that the defendants would on or before March 31 pay the plaintiffs 15,000*l.* in respect of the expenditure on the undertaking.

Order accordingly.

THE SUBSOIL OF A ROAD AT POPLAR.

THE case of the Metropolitan Borough of Poplar *v.* Millwall Dock Company came before Mr. Justice Farwell in the Chancery Division on the 25th ult., an action by the plaintiffs against the defendants for an injunction restraining defendants from laying a pipe and drain under, and from trespassing upon, East Ferry-road, Poplar.

Mr. W. H. Upjohn, K.C. (with him Mr. Ashton Cross), for the plaintiffs, said his clients' case rested upon a number of Acts of Parliament. The road in question vested in the plaintiffs as property in the ordinary way, and alternatively they said it vested in them as a street. The history of the road commenced in 1812, when an Act was passed which incorporated the Poplar and Greenwich Ferry Company, which had power to purchase land and make roads. At that time there was a road which ran from the Ferry House, south of the Isle of Dogs, to Chapel House, and one of the works which that Company undertook was to straighten this road at an awkward bend. In 1864 the defendant Company was incorporated, and this Company proposed to straighten the road still more, and construct a dock on each side of it. They made a dock on the west side of the road in question, but left on the other side a piece of vacant land. This road now ran near the Millwall Athletic Ground, just below which the defendant Company, under licence granted to the Ferry Company in 1875, constructed a line of pipes. Down to 1903 these were used for the pumping of sludge by the defendants from the west side of the road to the vacant land on the other side of the road. This caused serious complaint from the inhabitants of the neighbourhood, and in the result the Poplar Town Council, under its powers, terminated the licence. Then the defendant Company was called upon to remove the pipes and make good the road, but, as they declined, the plaintiffs moved the pipes. Then the defendants said their intention was to tunnel under the road at a depth of 5 ft. for the purpose of continuing to pump the sludge on to the other side of the road. On December 18 last his lordship granted an interlocutory injunction restraining the defendants from doing this. A part of the original claim was 50*l.*, the costs to the plaintiffs of removing the pipes, but this sum the defendants paid into court. The only question, therefore, was whether what the defendants were doing or threatening to do would be a trespass upon the plaintiffs' property.

Mr. Cripps, K.C., for the defendants, argued that section 43 of the Act of 1864, which conveyed the fee in the land, did not vest the subsoil of the road in the Ferry Company. Originally it was vested in the defendant Company under conveyance, and had in no way been divested from them. The transfer to the Ferry Company was of the surface of the road for the purpose of tolls, etc., but the subsoil the defendant Company could use for the purposes of their works. He asked his lordship to give judgment for the defendants and order an inquiry as to damages.

His lordship, in giving judgment, said that no more was vested in the local authority than was required for the purpose of controlling and protecting and maintaining the streets for the public use. The defendants did not wish to make a tunnel in such a manner as to interfere with the public rights and use of the road as a high road. He accordingly dismissed the action with costs, and granted the defendants an inquiry as to damages on the terms of which the interlocutory injunction was granted.

CASE UNDER THE PUBLIC HEALTH ACT.

THE case of Millard *v.* Balby-with-Hexthorpe Urban District Council came before a Divisional Court of King's Bench composed of the Lord Chief Justice, and Justices Wills and Kennedy on the 29th ult., on an appeal from a decision of the Justices of the West Riding of Yorkshire on a complaint preferred by the Urban District Council for non-payment of paving, etc., charges, under the provisions of the Public Health Act, 1875, in respect of Carr-hill-road, Balby.

The facts of the case were shortly as follows:—The street in question was not a highway repairable by the inhabitants at large, and on June 8, 1899, the Council served on all the owners of premises fronting such parts of the road as required to be paved, etc., requiring them to do the work. The owners not doing the work the Council did it. The work was completed on December 4, 1901, at which date the appellant owned premises in the road which required to be paved, etc. On March 20, 1902, the appellant sold the premises. The Council's Surveyor apportioned 45*l.* as the proportion due from the appellant for the work on his premises, and notice of apportionment was duly served on him on November 24, 1902. On May 20, 1903, a formal demand in writing was served on the appellant for payment of the 45*l.* The appellant contended that he was not liable because he was not the owner of the premises on December 4, 1901, when the work was completed, and also on May 20, 1903, the date of the demand. The respondent's contention was that the appellant was not required by law to be the owner of the premises, both at the date of the completion of the work, and at the date of the demand, but that the apportioned expenses were summarily recoverable from the person who was the owner of the premises when the works were completed. The Justices took this view, and held the appellant liable to pay the 45*l.*

At the conclusion of the arguments of counsel, the Lord Chief Justice, in giving judgment, said he felt bound by the decision in the case of the Queen *v.* Swindon in which it was held that an owner to be liable must be the owner at the time of the demand. His lordship said that if that decision was to be varied, it must be by the Court of Appeal.

Justice Wills and Kennedy concurred, and the appeal was accordingly allowed.

Leave to appeal was given.

PAVING CHARGES.

AT Southwark Police Court on Tuesday, Mr. Cecil Chapman gave his decision in the summons taken out by the Southwark Borough Council against Emily Caroline Furber, of 65, Carlton-hill, N.W., for the payment of 24*l.* 16s. 1d., apportionment charges in respect to paving, etc., in front of some model dwellings in Bear-garden, Bankside, of which she was the owner. He said he had come to the conclusion that the Borough Council were entitled to treat Bear-garden as a new street, and that the defendant was liable to pay the apportionment upon her property. The question of liability depended upon whether the place was a highway before 1835. He would not recapitulate its history except for the purpose of dealing with the evidence relied upon for the defence. It was admitted that after the abolition of the bear-pit in the XVIIth or early XVIIIth century buildings were erected on either side of the spot which had become a pleasure resort of some kind, and the paths and road were paved with granite sets. Apparently, the thoroughfare was first opened to the public and foot-passengers, and the road for carriages was reserved as private until well in the XIXth century. Resolutions were passed by the local authorities in 1848 and 1879 not to take over this place, but it was pointed out for the defence that this was not conclusive, because if they were liable to repair it before 1835, no amount of resolutions afterwards would get rid of their liability. One of the facts relied upon to establish their pre-existing liability was the existence of iron posts in the foot pavement on either side of the roadway from a date as early as 1815, and another fact was the payment of sums upon Bear-garden by the St. Saviour's Board of Works from 1883 to 1887 under the general heading of "expenditure upon streets." The iron posts were evidence that the footways were public property, but not the roadway, and the sums expended in repair were trifling and did not involve any admission of liability. —Judgment was given for the Borough Council with 10*l.* 10s. costs.

BUILDING OWNER AND HERNE BAY URBAN DISTRICT COUNCIL:

DRAINAGE DISPUTE AT HERNE BAY.

MR. JUSTICE GRANTHAM in the King's Bench Division on the 25th ult. heard the case of

Ramuz and Rowe *v.* the Herne Bay Urban District Council, an action for a declaration that the plaintiff Ramuz was entitled to connect the drains of his houses on the Western Esplanade, Central, St. George's, and other estates with the sewers belonging to the defendants. The plaintiff Ramuz also claimed damages against defendants by reason of the defendants trespassing and wrongful entering on the plaintiffs' roads, land, and premises known as the St. George's Hotel, and disconnecting the drains with the sewers, and for obstructing the drainage. Mr. Ramuz also asked for an order on the defendants to remove such obstructions and to connect the drains, and an injunction to restrain the defendants from further acts of trespass. He also claimed damages against the defendants for alleged breach of an agreement dated May, 1901, and two conveyances, and the plaintiff Rowe also claimed relief.

Defendants, by their defence, generally traversed the plaintiffs' allegations, and denied that the roads were laid out and constructed in accordance with plans deposited with defendants' predecessors.

In a second action the Council claimed a declaration that Ramuz should pull down the old Coastguard Station and deliver them up vacant possession of the land, and they contended that under the terms of an agreement he could not drain his houses until this was done.

Defendant, whilst admitting the agreement, said that the Council had not carried out their part of it.

Mr. H. F. Dickens, K.C., and Mr. Herbert Smith appeared for the plaintiff Ramuz, and Mr. Macmorran, K.C., and Mr. Hohler for the Council.

Mr. Dickens opened the case and the facts, during the course of which he stated that Ramuz was now in a position to give the Council the land upon which the Coastguard Station stood.

His lordship suggested that the parties should endeavour to come to terms.

After a long consultation, Mr. Dickens asked his lordship to adjourn the case, with liberty to either party to apply. They hoped to arrive at satisfactory terms eventually.

His lordship assented to this course being adopted.

ARCHITECT'S SUIT AGAINST NEWCASTLE BUILDERS.

AN action for damages for slander was heard at the Newcastle Assizes on the 23rd ult. Plaintiff was Mr. Edward Shewbrooks, an architect, and defendants were Messrs. S. F. Davidson and S. Millar, contractors. Mr. Shewbrooks claimed damages for slanders spoken of him by the two defendants, while the defendants denied that they uttered the words complained of, or that the words complained of bore the defamatory meaning alleged.

Counsel said that Mr. Shewbrooks was a very well-known architect in Newcastle, and it appeared that in 1902 Mr. Sinclair, tobacco-manufacturer, determined to do a considerable amount of work on his premises, and he arranged with Mr. Shewbrooks that he should act as his architect in the carrying-out of his building operations. Mr. Shewbrooks in consequence prepared the specifications and plans, and so on, and bills of quantities, and sent out to a certain number of well-known contractors to tender for this work. Mr. Davidson, one of the defendants, was a well-known contractor in this district, and Mr. Millar was a gentleman apparently carrying on the same business who had become associated with Mr. Davidson in the execution of these works for Mr. Sinclair. As the contract proceeded, Mr. Shewbrooks had to condemn certain bricks used, and, acting in the interests of his employer and in the execution of his own duty, he was bound to condemn the bricks and to insist that the bricks which Mr. Sinclair was paying for should be provided. It was alleged that Mr. Davidson called Mr. Shewbrooks, in the presence of Mr. Sinclair, "one of the five scamps of Newcastle who took secret commissions. If it had been twenty years ago he would have been in gaol."

Mr. Shewbrooks was called and said he had been in business in Newcastle for thirty years.

For the defence the allegations were denied, the only suggestion being that the defendants were unable to work with Mr. Shewbrooks.

Eventually the jury found a verdict for the plaintiff, but thought the case ought never to have been brought into court. They assessed the damages at one farthing.

Judgment was entered for one farthing and costs.—*Newcastle Mail.*

APPOINTMENT OF SANITARY OFFICER.—The Local Government Board has sanctioned the appointment of Mr. H. O. Harris as a sanitary inspector in Bermondsey, in place of Mr. T. L. Davies, resigned.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

18,964 of 1902.—J. PECKOVER: *Reciprocating Machines for Sawing and Working Stone and the like.*

A reciprocating stone-sawing machine, consisting of means for separating the silt from the abrading material ejected from the saws, moulding and finishing devices, and comprising mainly of sheets attached to the carrier frame so as to cause the material to fall on to other inclined planes disposed beneath the stone, and then dropped into a gutter provided with a conveyor, or scraper.

2,442 of 1903.— A. GREAVES and J. W. ARCHBOLD: *Apparatus for the Cure of Smoking Chimneys and for Regulating the Upcast Draught.*

An apparatus for the cure of smoking chimneys, consisting in the application in the flue of trays so disposed relatively to each other and to the aperture of the flue as to regulate the upcast draught to increase and decrease it, and to prevent down-draught causing smoke in the room.

2,682 of 1903.—F. L. BROUGHTON: *Fencing.*

In iron or steel fencings, the fastening of the members or component parts together by clip pieces pressed out or formed from one set of members, but not separated therefrom, and adapted to be closed tightly upon the other set.

3,028 of 1903.—J. PARKER: *Machinery for Moulding Bricks and the like.*

According to this invention, a machine is constructed, composed of a suitable framework, provided with bearings to receive a driving-shaft, upon which a series of double-acting cams are keyed. These cams are so fixed upon the driving-shaft that they shall not operate simultaneously. The cams are provided with flanges and springs for the purpose of drawing back plungers within their respective moulding-boxes. The said cams are struck to a concentric radius at their greatest diameter for the purpose of retaining the plungers at the maximum pressure during the desired space of time. The said framework is provided with suitable guides for the purpose of carrying moulding-plungers, preferably two plungers and two moulding-boxes to each cam; the said plungers are simultaneously forced outwards from the driving-shaft by the action of the cam during the process of moulding, after which they are partially withdrawn from the moulding-boxes by the same, or separate cams. The plunger guides terminate in a moulding-box for each plunger. Each moulding-box is provided with a guillotine cut-off device, working in suitable guides attached to, or integral with, the framework of the machine. Each of the said guillotines are operated by a pivotted bell crank, or lever, connected thereto by a link. The bell cranks, or levers, are operated by cams. The framework is provided with openings, suitably situated with regard to the guillotines, for the admission of the material to be moulded.

4,081 of 1903.—H. A. L. BARRY: *Means for the Automatic Regulation of Stove Fires.*

Means for automatically regulating the draught through a stove, comprising a rod secured at one end to the metal flue pipe and connected at the opposite end to the short arm of a bell crank lever, or its equivalent, pivotted on the said pipe; the long arm of the said lever being connected with a lever secured upon the spindle of a damper arranged in the flue, whereby the said damper may be rocked upon its axis, and the effective area of the flue varied.

4,154 of 1903.—J. H. J. BARTELS: *Cement for Uniting Pieces of Wood.*

A cement for uniting pieces of wood, consisting of animal glue dissolved in weak lime water, fine linseed meal, and silicate of soda.

5,023 of 1903.—W. H. HOLLAND and R. THOMASON: *Rising Hinges.*

A rising hinge, comprising a door and door post hinge plates, consisting of a central barrel portion on the door post plate and outer barrel portions on the door plate, the meeting edges of such barrels being inclined, or spiral, relatively to the hinge pin, one or more anti-friction rollers disposed between such edges, a hinge pin threading such barrels, and fast to the central barrel, and ball bearings disposed between such door plate barrels and the hinge pin.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

5,841 of 1903.—T. BAMFORTH and P. ALLEN: *Cooking Ranges.*

According to this invention, a range is formed with the usual back plate through which the hood works, or slides, over the hob, the said hood being fitted with a loose pivotted door, which is opened and closed on drawing forward and pushing back the hood by means of curved guides on the latter. Connecting the parts of the hob under the hood is a fixed back strap, the forward edge of which is so cut away as to permit of easy access to the boiler on removal of the hood, and a loose, portable plate, which is fitted under the hood at the hob level. The usual fire cover is fitted to slide, when opening the fire, under the said loose plate, which it raises bodily with the hood upon it. Upon drawing forward the fire cover, it, as well as the hood and portable back plate may be withdrawn from the hob, and access may then be had to the boiler manhole without taking apart any fixed part of the range.

6,598 of 1903.—R. S. HEAP: *Hoists or Elevators.*

According to this invention, the door, or gate, is divided horizontally into two parts, which are connected together by ropes, or chains, passing over pulleys in such a manner as to counterbalance each other, and so that one ascends whilst the other is descending, and thereby a 6 ft. opening is obtained by a movement of only 3 ft. of each half of the door, or gate. To the upright guides in the well, or to any other convenient part, a metallic box is fixed, in each side of which is formed a slot, which is not quite vertical, but slightly sloping in a diagonal direction, and in these slots the axes of two grooved, sliding pulleys are mounted, and in the box three other pulleys are fixed, and the ropes from the two halves of the sliding doors are passed over and under these pulleys in such a way that the movement of one of the sliding pulleys in the slots, say, about half the height of one half, the door, or gate, shall open the same fully, by raising one and depressing the other. The movement of the sliding pulleys in the inclined slots so as to open or close the doors, or gates, is effected by two catches which are attached to the side of the "cage," one on each side of the slot, and so arranged that one will act as the cage is ascending, and the other acts as it descends, both being so mounted as to be able to give way when not required to act.

6,703 of 1903.—E. G. JACKSON: *Preparation of "Carton Pierre."*

The preparation of "Carton pierre" in a liquid condition, enabling it to be washed into moulds of the articles to be reproduced, and to readily set therein without shrinkage, by homogeneously mixing pulped paper about one part, of glue about two parts, of water about 20 parts, of whiting about 10 parts, of Plaster of Paris (boiled) about 10 parts, and by adding to such mixture about one-twentieth part of sulphuric acid immediately prior to the liquid material being washed into, or applied to, the mould.

7,339 of 1903.—E. JONES and W. DAVIES: *Appliance for Bursting or Breaking Down Rock and the like.*

An appliance for bursting or breaking down rock and the like, consisting in the combination in, and with, a cylinder having a certain portion of its surface cut away, and containing one or more recesses, of a cam fitting each of such recesses, a piece of leather, or the like, beneath each cam, a common passage for the appliance, and a branch passage leading from the passage into the bottom of each recess.

7,566 of 1903.—J. DOBSON: *Fireproof Building Blocks, or Slabs.*

The object of this invention is to construct building blocks, or slabs, in such a manner as to have great strength of resistance and to be practically sound and fireproof, and which, at the same time, to take up little space. The slabs are constructed preferably of a mixture of breeze, cement, and slag, and are of any suitable size, preferably about 2 in. in thickness. A V-groove is formed all around the edges of the blocks, or slabs, which are dowelled vertically and horizontally with iron, steel, copper, or other metal dowels. The whole of the blocks, or slabs, are, therefore, bound together with the said dowels, so making a strong fireproof wall or partition.

7,579 of 1903.—GILMOUR, MORTON, and CO., LTD., J. MORTON, M.P., and A. MILLOUY: *Manufacture of Glazed Bricks and the like.*

The manufacture of glazed bricks, consisting in forming the bricks with frog recesses extending to the ends of the bricks, or with recesses extending centrally across their edges, and in arranging the bricks in a bonded pile in the glazing furnace, with the recesses of

alternate layers of the pile situated above the top edge glazing of the intermediate layer.

7,859 of 1903.—E. G. HARCOURT: *Bolts for Doors and the like.*

Bolts, for doors and like purposes, operated by a rotary, or spiral, or helical movement of the projecting knob or finger piece.

8,171 of 1903.—J. E. HAZLEHURST: *Means for Stretching Barbed and other Wire employed in Fencings, Ropes, Cords, Chains, and the like and apparatus therefor.*

This consists in the construction and combination of parts composing the means for stretching barbed and other wire employed in fencings, ropes, cords, chains, and the like and apparatus therefor, consisting of a metallic slotted frame, provided with a clip and a catch, or hook, for securing the same to a post; a metallic slotted frame being provided with a swivelling nut threaded internally to receive a screwed spindle carrying a socket and sliding handle; the upper side of the open "head" of the metallic slotted frame having a projection with a slot to receive the barbed and other wire, rope, cord, chain, and the like when the latter is operated upon by the eccentric grip, the other end of the screwed spindle being provided with the slotted socket and with the arms, between which is located the eccentric grip to operate upon the barbed, or other wire, rope, cord, chain, and the like.

8,474 of 1903.—D. F. COOKSEY: *Border Ridging and the like Tiles.*

A tile, for garden edging, roof ridging, and the like purposes, characterised by having a dowel pin projecting so as to engage in the socket of the next adjoining tile, for the purpose of keeping the tiles in line with each other.

8,809 of 1903.—C. E. CHALLIS: *Construction of Mats, Gratings, Floor Coverings, and the like.*

The construction of mats, gratings, floor coverings, and the like, consisting of the combination of rods, strips, laths, or blocks of wood of suitable shape connected by links, plates, or wires.

11,455 of 1903.—G. F. NEWMAN and H. A. LOUKS: *Regulators or Mechanism for Operating Fanlight Openers and Ventilators.*

Regulators, or mechanism, for operating fanlight openers, ventilators, and analogous purposes, consisting in the employment, or application of adjustable anti-friction and thrust bearings interposed between the ends of rotatory elements of the mechanism and thrust rings, which are secured to, or carried, by the casing, or stationary part, of the appliance.

11,952 of 1903.—C. HARVEY and H. G. SHORTHOUSE: *Production of Sheet Metal Cased Hinges.*

Sheet metal cased hinges, in which both sides of the casing metal are disposed, or included, within the inside of the knuckles of the foundation, or body part, and are nipped and secured by the closing of the said knuckles.

19,843 of 1903.—A. A. ROSE: *Roofing Tiles.*

A hexagonal-shaped roofing tile, having a longitudinally channelled central part, with the various interlocking flanges and catch blocks.

27,626 of 1903.—H. HIRSCHBACH: *Manufacture of Porous Bricks, or Blocks.*

The manufacture of bricks from volcanic sand by binding the said sand with blast furnace slag powder, or meal, and a suitable quantity of water.

28,561 of 1903.—R. W. BOYD: *Open Fire Ventilating Grate.*

A ventilating fire grate, comprising a ribbed outer case, with loose iron linings, and a draught regulator.

28,678 of 1903.—R. W. H. RODNEY: *Locks and Latches, in which a Lifting Latch is Used.*

Combined locks and lifting latches, consisting essentially in the combination of parts forming the mechanism for operating the latch, and so that it may be reversible.

203 of 1904.—W. HUMBLE, T. S. HUMBLE, W. H. HUMBLE, and G. B. HUMBLE: *A Floor Cramp.*

A floor cramp having a sliding rack bar, a pair of operating pawls mounted in a rocker, and means of clamping said cramp to the joist.

6,999 of 1903.—A. E. HUBERT and W. EDWARDS, (trading as Banner Sanitation Company): *A Flushing Tank for Drains, Sewers, and the like.*

Flushing tanks for drains, consisting of a syphon pipe and dome, a trap situated below same, an air valve in top of said dome, which is suddenly raised when the water has risen to a predetermined level, and which readjusts itself when the tank is empty.

28,405 of 1903.—J. T. CROSSLEY: *Machines for Preparing Ground for the Laying of Paving Blocks and Tiles.*

A machine, consisting, in combination, of a body, a scoop carried thereby, a conveyor belt adapted to advance the material excavated by said scoop, a second conveyor belt, constituting an elevator, and adapted to receive the material advanced by said first conveyor belt, rear driving wheels, means for driving said conveyor belts from said wheels, a fork pivotally carried forwardly of said body, a guide wheel carried by said fork, a lever adapted to maintain said fork in a plurality of positions, a wheel post, means for adjustably attaching the same to said body, and a wheel carried by said wheel post, and adapted to run upon a cable.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

February 22.—By JOHN BOTT & SONS.

Dulwich.—285, Croxted-rd., u.t. 93¼ yrs., g.r. 8*l.* 10s., e.r. 52*l.* 10s. £530

By DAVID J. CHATTELL.

St. Mary Cray, Kent.—High-st., "Cranbrook House" and "Kent House," y.r. 57*l.* 4s., also a plot of land, total area ¼ of an acre, f. 650

By A. M. NEWCOMBE.

Beckenham.—17, Clock House-rd., u.t. 85 yrs., g.r. 5*l.* 10s., e.r. 36*l.* 350

27 and 29, Clock House-rd., u.t. 85½ yrs., g.r. 14*l.*, e.r. 68*l.* 620

February 23.—By FRASER & HEIGH.

Wandsworth.—36, 38, 40, and 42, High-st. (s.), area about 9,300 ft., f., y.r. 137*l.* 16s. 9d. 2,925

Forest Gate.—41 to 53 (odd), Dames-rd., f., y.r. 206*l.* 2 310

By NEVILLE & CROSSE.

Putney.—8 and 10, Carmalt-gdns., u.t. 80½ yrs., g.r. 22*l.* 10s., e.r. 102*l.* 800

By REYNOLDS & EASON.

Islington.—11, Prebend-st., and 94, Windsor-st. (s.), c., y.r. 54*l.* 4s. 540

Canonbury.—8, Douglas-rd., u.t. 42 yrs., g.r. nil, e.r. 65*l.* 590

By RUTLEY, SON, & VINE.

Barnsbury.—167, Hemingford-rd., with stabling, u.t. 38½ yrs., g.r. 12*l.*, p. 500

Camden Town.—95, Arlington-rd., u.t. 33 yrs., g.r. 4*l.*, y.r. 42*l.* 400

By FREDERICK WARMAN.

Islington.—Rear of 147 to 152, Upper-st., freehold building land, area 7,000 ft., p. 500

Holloway.—3, Turle-rd., u.t. 47 yrs., g.r. 13*l.* 18s. 4d., e.r. 60*l.* 450

Hoxton.—159 to 165 (odd), St. John's-rd. (s.), u.t. 28 yrs., g.r. 71*l.* 10s., y.r. 180*l.* 400

Crouch End.—20, Barrington-rd., u.t. 70 yrs., g.r. 8*l.*, e.r. 45*l.* 395

By G. F. NORFOLK & CO.

Blackheath.—8, 8a, 9, and 9a, Kelvin-ter., u.t. 97 yrs., g.r. 13*l.*, w.r. 93*l.* 12s. 760

Glenluce-rd., f.g. rents 22*l.* 1s., reversion in 95 yrs. 545

Greenwich.—72, Woolwich-rd. (s.), u.t. 90 yrs., g.r. 7*l.* 14s. 6d., y.r. 60*l.* 650

By NICHOLSON GREAVES, & CO. (at Sheffield.)

Sheffield, Yorks. — Cambridge-st., a corner building site, area 346 yds., f. 1,450

Trippet-la., a freehold building plot, area 200 yds. 390

By ALFRED RICHARDS (at Tottenham).

Tottenham.—103 and 105, Winchelsea-rd., f., w.r. 67*l.* 12s. 705

26, Steele-rd., f., w.r. 33*l.* 16s. 335

Chesnut-rd., "The Stoneleigh Works," f., p. 1,700

36, Springfield-rd., u.t. 76½ yrs., g.r. 4*l.*, p. 255

70, Stamford-rd., u.t. 61 yrs., g.r. 4*l.* 10s., w.r. 28*l.* 12s. 145

Edmonton.—68 to 74 (even), Balham-rd., u.t. 94½ yrs., g.r. 18*l.*, w.r. 93*l.* 12s. 320

27 to 37 (odd), Millfield-rd., u.t. 71½ yrs., g.r. 18*l.*, e.r. 117*l.* 380

February 24.—By BAXTER, PAYNE, & LEPPER.

Bromley, Kent.—Blyth-rd., "Sherstone," f., p. 1,510

Brondesbury.—2, Christ Church-av., u.t. 69 yrs., g.r. 18*l.*, y.r. 85*l.* 790

Bethnal Green.—278, Bethnal Green-rd. (s.), f., y.r. 45*l.* 915

By DYER, SON, & HILTON.

Blackheath. — 8, Vanbrugh Park-rd., u.t. 53 yrs., g.r. 12*l.*, p. 600

Lewisham.—9, Carlton-rd., u.t. 69 yrs., g.r. 8*l.*, p. 550

By MORLEYS'.

Edgware-rd.—No. 127, also 1, Burwood-pl., beneficial lease for 16½ yrs., y.r. 150*l.* 275

By NOTT, CARTWRIGHT, & ETCHES.

Pimlico.—6, Vauxhall Bridge-rd., u.t. 23½ yrs., g.r. 13*l.*, y.r. 55*l.* 410

Balham.—45, Culverden-rd., u.t. 72 yrs., g.r. 10*l.*, e.r. 60*l.* 450

26, Cornford-gr., u.t. 70½ yrs., g.r. 8*l.*, e.r. 42*l.* 360

By R. TIDEY & SON.

De Beauvoir Town.—108, De Beauvoir-rd., u.t. 16½ yrs., g.r. 5*l.*, y.r. 36*l.* 245

27, Southgate-rd., u.t. 14½ yrs., g.r. 2*l.*, e.r. 34*l.* 225

64, Southgate-rd., u.t. 68½ yrs., g.r. 13*l.*, y.r. 42*l.* 420

By FRANK WINTERTON.

Harringay.—10, Woollaston-rd., u.t. 83 yrs., g.r. 7*l.*, e.r. 42*l.* 400

By DOUGLAS YOUNG & CO.

Tottenham Court-rd. — No. 16 (shop and factory), f., y.r. 225*l.* 4,300

Hastings, Sussex. — 36, Wellington-sq., f., y.r. 55*l.* 875

By BLAKE & CARPENTER.

Shirley, Surrey.—Spring Park-rd., a block of freehold building land £270

Shirley Church-rd., four plots of freehold building land 1,350

Wickham-rd., "Shirley Rose Nurseries," f., y.r. 36*l.* 875

Wickham-rd., "The Crown Inn," f., y.r. 70*l.* 2,950

Wickham-rd, freehold cottage and garden, q.r. 15*l.* 280

Wickham-rd., a piece of garden ground, f. 170

Shirley-rd., four freehold building plots 1,560

By BALLARD & MARSH (at Twickenham).

Teddington.—Waldegrave-rd., three plots of land, f. 245

Twickenham.—Strawberry Hill-rd., "Bromley Villa" and "Lancaster Villa," c., y.r. 60*l.* 710

By J. M. LEEDER & SON (at Neath).

Neath, Glamorgan.—73 to 76, Montpelier-ter., f., y.r. 58*l.* 16s. 1,255

37 and 38, Briton Ferry-rd., f., y.r. 29*l.* 14s. 3d. 650

36, Briton Ferry-rd. ("Hong Kong Stores"), u.t. 48½ yrs., g.r. 3*l.* 15s., y.r. 40*l.* 625

7 and 8, Lombard-st., f., y.r. 19*l.* 4s. 440

Lombard-st., freehold stable and warehouse, also clay pit and plot of land, f., y.r. 18*l.* 250

By BELLAMY & Co. (at Putney).

Putney.—78, West-hill, u.t. 84 yrs., g.r. 5*l.*, e.r. 65*l.* 640

Fulham.—62, Felden-st., u.t. 90 yrs., g.r. 7*l.*, y.r. 52*l.* 16s. 455

February 25.—By FAREBROTHER, ELLIS, & Co.

Wandsworth.—2, High-st., and 1, 3, 5, and 7, North-st. (including smithy and stabling), area 15,200 ft., f., y.r. 178*l.* 8s. 4,500

West Kensington.—36 to 42 (even), Vereker-rd., u.t. 78½ yrs., g.r. 50*l.*, y.r. 255*l.* 2,000

39, Edith-rd., u.t. 71½ yrs., g.r. 1*l.*, p. 1,000

56, Edith-rd., u.t. 71½ yrs., g.r. 12*l.*, y.r. 65*l.* 500

106 and 108, Baron's Court-rd., u.t. 78½ yrs., g.r. 20*l.*, y.r. 90*l.* 805

26, Talgarth-rd., u.t. 72½ yrs., g.r. 10*l.*, y.r. 55*l.* 420

By HUMPHREYS, SKITT, & HUMPHREYS.

Peckham.—Hollydale-rd., f.g.r. 81*l.*, reversion in 69 yrs. 2,120

Queen's-rd., f.g.r. 21*l.*, reversion in 5½ yrs. 820

By C. C. & T. MOORE.

Mile-end.—53, Nicholas-st., f., w.r. 28*l.* 12s. .. 355

Bow.—42, Alfred-st., u.t. 43 yrs., g.r. 4*l.* 4s., q.r. 36*l.* 400

Hackney.—143, Victoria Park-rd., area one-third of an acre, u.t. 36 yrs., g.r. 12*l.*, p. 1,000

By NEWBON, EDWARDS, & SHEPHARD.

Holloway.—60, Kingsdown-rd., u.t. 54 yrs., g.r. 5*l.* 5s., w.r. 39*l.* 275

Hornsey.—220, Wightman-rd., f., y.r. 34*l.* .. 500

Stamford Hill.—Nos. 70, 72, 74, and 76 (s.), u.t. 84 yrs., g.r. 80*l.*, y.r. 360*l.* 5,050

3, 5, and 7, Bergholt-rd., u.t. 81 yrs., g.r. 22*l.* 10s., y.r. 135*l.* 1,320

37 to 59 (odd), 63 and 65, Cranwich-rd., u.t. 86 yrs., g.r. 98*l.*, y.r. 616*l.* (in lots) 5,655

8 and 18, Cranwich-rd., u.t. 81 yrs., g.r. 15*l.*, y.r. 71*l.* 775

By J. C. PLATT.

Shepherd's Bush.—Blomfield Pavement, etc. (The Blomfield Estate), f.g.r. 398*l.*, including several peppercorn ground rents, reversions in 26, 61, 71, and 81 yrs. (in one lot) 11,400

By STIMSON & SONS.

Chiswick.—445, High-rd. (s.), u.t. 46 yrs., g.r. 10*l.*, y.r. 55*l.* 470

Bermondsey.—14, Willow-walk, u.t. 18½ yrs., g.r. 4*l.* 13s., w.r. 36*l.* 8s. 160

Peckham.—14, Blake's-rd., u.t. 53½ yrs., g.r. 5*l.*, w.r. 31*l.* 4s. 170

1, Hornby-rd., u.t. 53½ yrs., g.r. 5*l.*, w.r. 28*l.* 12s. 150

31, Grenard-rd., u.t. 60½ yrs., g.r. 5*l.* 10s., w.r. 32*l.* 10s. 265

Old Kent-rd.—21 and 23, Arthur-st., u.t. 15½ yrs., g.r. 3*l.* 10s., w.r. 57*l.* 4s. 200

Peckham. — 60 and 62, Lyndhurst-rd., f., y.r. 90*l.* 1,070

45 and 47, Denman-rd., f., y.r. 68*l.* 1,090

Camberwell.—17, Boyson-rd., u.t. 46 yrs., g.r. 6*l.* 6s., p. 350

By JOSEPH STOWER.

King's Cross. — 53, Liverpool-st. (part of "Hott's Hotel"), f., y.r. 90*l.* 1,600

34 and 35, Liverpool-st., f., e.r. 100*l.* 1,720

Regent's Park.—73, Regent's Park-rd. (s.), f., y.r. 36*l.* 700

Peckham.—57 and 59, Elm-gr., and 66 to 72 (even), Victoria-rd., u.t. 78 yrs., g.r. 14*l.* for next 22½ yrs., and 40*l.* thereafter 1,360

By VARLEY & LOCKING.

Finsbury Park.—13, Woodberry Down, u.t. 81½ yrs., g.r. 2*l.*, e.r. 120*l.* 1,700

February 26.—By BROWETT & TAYLOR.

Whitechapel.—21, Great Prescott-st., and 19, Chambers-st., area nearly 2,000 ft., f., e.r. 120*l.* 2,190

Kentish Town.—91, Harmood-st., c., w.r. 46*l.* 16s. 420

By C. GERRETT & Co.

Norwood.—95, Birchanger-rd., f., p. 465

Martha-ter., f.g.r. 5*l.*, reversion in 96 yrs. 130

By W. MARTIN & Co.

Dulwich.—3, Hillsboro'-rd., u.t. 60 yrs., g.r. 7*l.* 10s., y.r. 44*l.* 510

Peckham.—12, 14, 16, and 18, Copeland-rd., u.t. 53 yrs., g.r. 20*l.*, w.r. 143*l.* 810

Contractions used in *these lists*.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops; ct. for court

MEETINGS.

FRIDAY, MARCH 4.

Architectural Association.—(1) Special Meeting to consider whether the day of the Ordinary Meetings shall be changed. (2) Mr. J. W. Simpson on "Schools." 7 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. W. C. Tyndale on "Calculations, Measurements, and Plans and Sections." 7 p.m.

Junior Institution of Engineers (Westminster Palace Hotel).—Paper by Mr. G. C. Allingham entitled "Some Practical Notes on Electric Storage Batteries." 8 p.m.

SATURDAY, MARCH 5.

Architectural Association.—Fourth Spring Visit, to the Savoy Hotel, by permission of Messrs. T. E. Collcutt and Stanley H. Hamp. 2.30 p.m.

Royal Institution.—Right Hon. Lord Rayleigh on "The Life of Stokes," III. 3 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Sewage Works, Sutton, Surrey. 3 p.m.

Institute of Sanitary Engineers, Limited.—Visit to the Richmond Main Sewage Works (Mr. W. Fairley, engineer).

British Institute of Certified Carpenters.—Discussion on "Failures in Carpentry and Joinery." 6 p.m.

MONDAY, MARCH 7.

Royal Academy.—Professor Aitchison, R.A., on "Vitruvius," III.

Surveyors' Institution.—Mr. T. Binnie on "The Land Purchases for the New Naval Base at Rosyth, on the Firth of Forth." 8 p.m.

Society of Engineers.—Mr. F. Latham on "Some Recent Works of Water Supply at Penzance." 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Professor R. Elsey Smith on "Building Materials." 7 p.m.

Society of Arts (Cantor Lectures).—Mr. Bertram Blount, F.I.C., on "Recent Advances in Electro-Chemistry," I. 8 p.m.

Regent-street Polytechnic (University Extension Lectures).—Professor Vivian Lewes on "The Chemistry of Air, Fire, and Water," VI. 8 p.m.

Glasgow Philosophical Society (Architectural Section).—Mr. A. Gardner on "Old Glasgow Buildings—Historical and Descriptive," illustrated. 8 p.m.

Liverpool Architectural Society (Incorporated).—(1) Presentation of a Testimonial to Professor Simpson. (2) Mr. G. Gilbert Scott will exhibit and explain about Twenty Drawings of the Liverpool Cathedral. 6 p.m.

TUESDAY, MARCH 8.

Institution of Civil Engineers.—Mr. R. Scott Scholefield on "The Erection of Iron Bridges." 8 p.m.

Institute of Builders.—Conditions of Contract Sub-Contractors' Committee Meeting. 4 p.m. Conditions of Contract Committee Meeting. 4.30 p.m.

WEDNESDAY, MARCH 9.

National Photographic Record Association.—Annual meeting at the Midland Grand Hotel, St. Pancras. Chair will be taken by Sir J. Benjamin Stone, M.P., at 4.30. Report will be presented, and some of Sir J. Benjamin Stone's more recent photographs will be exhibited.

Edinburgh Architectural Association.—Rev. D. Butler, M.A., on "The Religious Inspiration of Historical Architecture." 8 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—(1) Inspection in the District of Hackney. (2) Mr. J. Wright Clarke on "Details of Plumbers' Work." 7 p.m.

THURSDAY, MARCH 10.

Royal Academy.—Professor Aitchison, R.A., on "Vitruvius," IV.

Architects' Benevolent Society.—Annual General Meeting, No. 9, Conduit-street, W. The President, Mr. Aston Webb, will take the chair at 5 p.m.

Royal Institution.—Professor H. L. Callendar on "Electrical Methods of Measuring Temperature," III. 5 p.m.

Carpenters' Hall, London-wall (Free Lectures on Matters connected with Building).—Professor F. M. Simpson on "Architectural Development during the XIXth Century." 8 p.m.

Leeds and Yorkshire Architectural Society.—Mr. C. E. Bateman and Mr. J. Ward on "Sketching Excursions of the Birmingham Architectural Association." 6.30 p.m.

Institution of Electrical Engineers.—(1) Mr. F. F. Bennett on "The Railway Electrification Problem and its Probable Cost for England and Wales." (2) Mr. H. M. Hobart on "The Rated Speed of Electric Motors as Affecting the Type to be Employed." 8 p.m.

Manchester Society of Architects.—The Students' Drawings for the whole Session will be on Exhibition from 6 p.m. At 6.45 p.m. the Prizes to the successful Competitors will be Presented by the President. This will be followed by a General Review and Discussion of the Drawings.

FRIDAY, MARCH 11.

Institution of Civil Engineers (Students' Meeting).—Mr. W. G. Banister on "The Premium System of Payment for Labour." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Professor R. Elsey Smith on "Sanitary Building Construction and Planning; Soil and Local Physical Conditions." 7 p.m.

Junior Institution of Engineers.—Visit to the Works of the Electrical Power Storage Company, Millwall. 3 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. J. I. Little on "Sewage Disposal of Country Houses." 8 p.m.

SATURDAY, MARCH 12.

Royal Institution.—Right Hon. Lord Rayleigh on "The Life of Stokes," IV. 3 p.m.

Edinburgh Architectural Association.—Visit to the Midlothian County Buildings, George IV. Bridge.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Sewage and Destructor Works, Ealing. 2.15 p.m.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 16 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 19 0	,, ,, ,,
Facing Stocks	2 12 0	,, ,, ,,
Shippers	2 10 0	,, ,, ,,
Flettons	1 10 0	,, at railway depôt.
Red wire Cuts	1 13 0	,, ,, ,,
Best Fareham Red	3 12 0	,, ,, ,,
Best Red Pressed Ruabon Facing	5 0 0	,, ,, ,,
Best Blue Pressed Staffordshire	4 4 0	,, ,, ,,
Do. Bullnose	4 10 0	,, ,, ,,
Best Stourbridge Fire Bricks	4 8 0	,, ,, ,,
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	13 0 0	,, ,, ,,
Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	17 0 0	,, ,, ,,
Double Stretchers	19 0 0	,, ,, ,,
Double Headers	16 0 0	,, ,, ,,
One Side and two Ends	19 0 0	,, ,, ,,
Two Sides and one End	20 0 0	,, ,, ,,
Splays, Chamfered, Squints	20 0 0	,, ,, ,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	14 0 0	,, ,, ,,
Double Stretchers	15 0 0	,, ,, ,,
Double Headers	14 0 0	,, ,, ,,
One Side and two Ends	15 0 0	,, ,, ,,
Two Sides and one End	15 0 0	,, ,, ,,
Splays, Chamfered, Squints	14 0 0	,, ,, ,,
Second Quality White and Dipped Salt Glazed	2 0 0	,, less than best.

	s. d.	
Thames and Pit Sand	7 3	per yard, delivered.
Thames Ballast	6 0	,, ,,
Best Portland Cement	29 0	per ton, ,,
Best Ground Blue Lias Lime	20 6	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered.
Stourbridge Fire Clay in sacks	27s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington depôt	1 8½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms depôt	1 8½	,, ,,
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 1	,, ,,
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf	2 2½	,, ,,

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld. rly. depôt.
Beer in blocks	1 6	,, ,,
Greenshill ,,	1 10	,, ,,
Darley Dale in blocks	2 4	,, ,,
Red Corsehill ,,	2 5	,, ,,
Closeburn Red Freestone	2 0	,, ,,
Red Mansfield ,,	2 4	,, ,,
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	per ft. cube, deld. rly. depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super. ,,
6 in. rubbed two sides ditto, ditto	2 6	,, ,,
3 in. sawn two sides slabs (random sizes)	0 11½	,, ,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	,, ,,
1½ in. to 2 in. ditto, ditto	0 6	,, ,,
HARD YORK—		
Scappled random blocks	3 0	per ft. cube ,,
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2 8	per ft. super. ,,
6 in. rubbed two sides Ditto	3 0	,, ,,
3 in. sawn two sides slabs (random sizes)	1 2	,, ,,
2 in. self-faced random flags	0 5	,, ,,
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube.
,, ,, ,, 6 in. sawn both sides landings	2 7	deld. rly. depôt. per ft. super. deld. rly. depot.
,, ,, ,, 3 in. do.	1 2½	,, ,,

SLATES.

in. in.	£ s. d.	
20 × 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 × 12 ,, ,,	13 17 6	,, ,,
20 × 10 best seconds ,,	12 15 0	,, ,,
20 × 12 ,, ,, ,,	13 10 0	,, ,,
16 × 8 ,, ,, ,,	7 0 0	,,
20 × 10 best blue Portmadoc	12 12 6	,, ,,
16 × 8 best blue Portmadoc	6 12 6	,, ,,
20 × 10 best Eureka unfading green	15 2 6	,, ,,
20 × 12 best Eureka unfading green	17 2 6	per 1000 of 1200 at r. d.
18 × 10 ,, ,,	12 10 0	,, ,,
16 × 8 ,, ,,	10 5 0	,, ,,
20 × 10 permanent green	11 10 0	,, ,,
18 × 10 ,, ,,	9 10 0	,, ,,
16 × 8 ,, ,,	6 10 0	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1000 at rly. depôt
Hip and Valley tiles	3 7	per doz. ,, ,,
Best Broseley tiles	50 0	per 1000 ,, ,,
Do. Ornamental tiles	52 6	,, ,, ,,
Hip and Valley tiles	4 0	per doz. ,, ,,
Best Ruabon red, brown or brindled do. (Edwards)	57 6	per 1000 ,, ,,
Do. Ornamental do.	60 0	,, ,, ,,
Hip tiles	4 0	per doz. ,, ,,
Valley tiles	3 0	,, ,, ,,
Best Red or Mottled Staffordshire do. (Peakes)	51 0	per 1000 ,, ,,
Do. Ornamental do.	54 6	,, ,, ,,
Hip tiles	4 1	per doz. ,, ,,
Valley tiles	3 8	,, ,, ,,
Best "Rosemary" brand plain tiles	48 0	per 1000 ,, ,,
Best Ornamental tiles	50 0	,, ,, ,,
Hip tiles	4 0	per doz. ,, ,,
Valley tiles	3 8	,, ,, ,,
Best "Hartshill" brand plain tiles, sand faced	50 0	per 1000 ,, ,,
Do. pressed	47 6	,, ,, ,,
Do. ornamental, do.	50 0	,, ,, ,,
Hip tiles	4 0	per doz. ,, ,,
Valley tiles	3 6	,, ,, ,,

WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 10 0	16 10 0
Deals: best 3 by 9	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	,, ,, ,,
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	9 10 0
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	9 10 0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¼ in.	1 0 0	,,

	At per load of 50 ft.	
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (30 ft. average)	3 5 0	3 15 0

JOINERS' WOOD. White Sea:	At per standard.	
3 in. by 11 in.	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.	18 10 0	20 0 0
3 in by 9 in.	17 10 0	19 0 0
,, ,, Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Petersburg: second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens	11 0 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg:— First white deals, 3 in. by 11 in.	14 10 0	15 10 0
,, ,, 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	14 10 0
,, ,, 3 in. by 9 in.	12 10 0	13 10 0
,, ,, battens	9 10 0	10 10 0
Pitch-pine: deals	16 10 0	20 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	35 0 0	upwards.
Oddments	24 0 0	26 0 0
Seconds, regular sizes	26 10 0	28 10 0
Yellow Pine oddments	22 0 0	24 0 0
Kauri Pine—Planks, per ft. cube	0 3 6	0 5 0
Danzig and Stettin Oak Logs— Large, per ft. cube	0 2 6	0 3 6
Small ,,	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 7	0 0 8
¼ in. do. do.	0 0 6½	—
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	17 0 0	21 0 0
American Whitewood Planks— per ft. cube	0 4 0	—

Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	0 18 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
¾ in. by 7 in. do. do.	0 14 0	0 18 0
1 in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 11 6	0 13 6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0 ..	7 5 0
Compound Girders, ordinary sections	8 2 6 ..	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6 ..	8 17 6
Flitch Plates	8 5 0 ..	8 15 0
Cast Iron Columns and Stanchions including ordinary patterns	7 2 6 ..	8 5 6

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	7 5 0 ..	7 15 0
Staffordshire Crown Bars, good merchant quality	7 15 0 ..	8 5 0
Staffordshire "Marked Bars"	10 0 0 ..	—
Mild Steel Bars	8 15 0 ..	9 5 0
Hoop Iron, basis price	9 5 0 ..	9 10 0
" " galvanised	17 10 0 ..	—
("And upwards, according to size and gauge.)		
Sheet Iron (Black)—		
Ordinary sizes to 20 g.	9 15 0 ..	—
" " 24 g.	10 15 0 ..	—
" " 26 g.	12 5 0 ..	—
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0 ..	—
Ordinary sizes to 22 g. and 24 g	13 5 0 ..	—
" " 26 g.	14 5 0 ..	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	16 0 0 ..	—
" " 22 g. and 24 g.	16 10 0 ..	—
" " 26 g.	18 0 0 ..	—
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g	12 10 0 ..	—
" " 22 g. and 24 g.	13 0 0 ..	—
" " 26 g.	13 15 0 ..	—
Best Soft Steel Sheets, 6ft. by 2ft. to 3 ft. by 20 g. and thicker..	11 15 0 ..	—
Best Soft Steel Sheets, 22 g. & 24 g	12 15 0 ..	—
" " " 26 g	14 0 0 ..	—
Cut nails, 3 in. to 6 in.	9 0 0 ..	9 10 0
(Under 3 in., usual trade extras.)		

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3lb. and up	14 7 6 ..	—
Pipe in coils	14 17 6 ..	—
Soil pipe	17 7 6 ..	—
Compo pipe	17 7 6 ..	—
ZINC—Sheet—		
Vieille Montagne ton	26 5 0 ..	—
Silesian	26 0 0 ..	—
COPPER—		
Strong Sheet per lb.	0 0 10½ ..	—
Thin "	0 0 11½ ..	—
Copper nails "	0 0 11 ..	—
BRASS—		
Strong Sheet per lb.	0 0 10 ..	—
Thin "	0 0 11 ..	—
TIN—English Ingots "	0 1 4 ..	—
SOLDER—Plumbers' "	0 0 6½ ..	—
Tinmen's "	0 0 8 ..	—
Plumpipe "	0 0 9 ..	—

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2d. per ft.	delivered.
" fourths	1½d. "	"
21 oz. thirds	3d. "	"
" fourths	2½d. "	"
26 oz. thirds	3½d. "	"
" fourths	3d. "	"
32 oz. thirds	4½d. "	"
" fourths	4d. "	"
Fluted sheet, 15 oz.	2½d. "	"
" 21 oz.	3½d. "	"
½ Hartley's Rolled Plate	1½d. "	"
¾ " " "	1¾d. "	"
1 " " "	2½d. "	"

OILS, &c.

	£ s. d.
Raw Linseed Oil in pipes or barrels.. per gallon	0 1 8
" " " in drums "	0 1 11
Boiled " " in pipes or barrels.. "	0 1 11
" " " in drums "	0 2 2
Turpentine, in barrels "	0 3 10
" in drums "	0 4 0
Genuine Ground English White Lead per ton	19 0 0
Red Lead, Dry "	19 0 0
Best Linseed Oil Putty per cwt.	0 7 6
Stockholm Tar per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 23s. per annum. Remittances (payable to J. MORGAN) should be addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

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J. W. A.—J. K. & SONS—W. B. (Amounts should have been stated).—F. P. T. (Below our limit).—C. B.—R. G. (We do not publish lists of tenders unless amounts are stated, except when the work is tendered for on a schedule of prices).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the author.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER and *not* to the Editor.

PUBLISHER'S NOTICES.

Nat. Tel., 6112, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXV. (July to December, 1903) was given as a supplement with issue of January 9 last.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

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*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BURNLEY.—For 850 yards lineal of 9 in. earthenware pipe sewer, from Queen-street, Harle Syke, to Haggate, for the Rural District Council. Mr. S. Edmondson, Surveyor to the Council:—

	£ s. d.		s. d.
T. Rowland	541 1 0	Rock Cutting	4 6
G. Hunter	532 12 0	do.	10 0
J. MacCabe & Co.	528 14 0	do.	5 0
H. Prescot & Co.	478 0 0	do.	8 6
French & Clough	451 3 0	do.	6 0
J. Wadge	447 12 0	do.	10 0
E. Heap	441 5 0	do.	7 6
Clegg Bros.	425 0 0	do.	6 0
J. R. Atkinson, Colne*	409 12 0	do.	6 0
J. R. Mills	401 10 0	do.	8 0

BRENTWOOD.—For diversion of main sewer in James-road, for the Urban District Council. Mr. J. R. Fothergill, Surveyor:—

R. Claydon, Brentwood* £452 17 6

CAERAU (Maesteg).—For the erection of a workmen's library, institute, etc., for the Trustee. Messrs. E. W. Burnett & Son, architects, Tondu and Maesteg:—

John Jenkins £2,925 0 0
Stephen Lewis 2,895 0 0
John Nicholas, Port Talbot* 2,495 0 0

[Architects' estimate, £2,650.]

CARDIFF.—For foundations for a new cricket pavilion, Cardiff Arms Park. Messrs. Veall & Sant, architects, Cardiff. Quantities by architects:—

R. W. Hunter.	£531 15 11	F. Small	£435 0 0
J. Allan	520 0 0	J. Thomas	432 0 0
H. Gibbon	497 0 0	W. Symonds & Co.	398 8 0
W. Thomas & Co.	474 19 0	Melhuish Bros.	375 0 0
F. Ashley	468 3 1	J. E. Williams.	367 4 11
Turner & Sons.	458 0 0	Gibson Bros*...	352 0 0
Knox & Wells.	437 0 0		

[All of Cardiff.]

COEDSAESON.—For erecting a villa at Coedsaeson near Swansea. Mr. C. T. Ruthen, architect, Bank chambers, Heathfield-street, Swansea:—

J. D. Jones	£1,060 16 3	Jones, Price, & Co.	£775 0 0
John Davies	950 0 0	Charles Marles	755 0 0
David Jenkins	867 0 0	Lloyd Bros., Argyle-street, Swansea*‡	748 10 0
Griffith Davies	855 0 0		
J. & D. Jones.	800 0 0		
J. Marles & Sons	785 0 0		

‡ This amount does not include plumbing and ironmongery.

COVENTRY.—For road works, Brick Kiln-lane, and 12-in. stoneware surface water pipe sewer, &c., for the Corporation. Mr. J. E. Swindlehurst, City Engineer, Saint Mary's Hall, Coventry:—

W. Boon & Sons, Nuneaton £1,767 19 6

DARWEN.—For the erection of a Sunday school at Lower Darwen, Lancs., for the United Methodist Free Church. Messrs. Sames & Green, architects, Knott-street, Darwen:—

R. Leigh	£3,414	R. Shorrock	£3,190
T. Lightbown	3,200	J. Knowles, Darwen*	2,750

DUTTON (near Preston).—For the erection of an isolation hospital, Dutton, near Preston Brook, for the Runcorn Rural District Council. Mr. G. E. Bolshaw, architect, 189, Lord-street, Southport:—

W. Nickson & Sons	£7,510 0 0	R. Neill & Sons	£6,465 0 0
S. Appleton.	7,475 0 0	Hughes & Stirling	6,439 0 0
J. Tinline	7,462 0 0	Dryland & Preston	6,348 2 6
A. White & Sons	7,307 3 2	R. Hall	6,222 0 0
Beckett & Co.	7,243 10 0	H. Fairclough	6,073 0 0
S. Butterworth & Sons, Ltd.	6,800 0 0	E. Marshall & Sons, Ltd., Ashton-under-Lyne*	5,930 0 0
A. K. Irving & Sons	6,730 0 0	J. Gerrard & Son	not given
Moore Bros.	6,668 10 0		
J. Dolan	6,595 0 0		
S. Warburton	6,500 0 0		

[Architect's estimate, £6,820.]

EASTBOURNE.—For the erection of a private dwelling house, Blackwater-road, Eastbourne, for Mr. Ralph H. Burdett, of De Walden Court, Eastbourne. Mr. Bertram Earp, architect, 134, Terminus-road, Eastbourne:—

Joseph Martin	£2,450 0 0	E. Cornwell & Son	£2,245 0 0
C. Peerless-Dennis & Co.	2,440 0 0	Mark Martin*	1,999 18 10

[All of Eastbourne.]

EAST LANGDON.—For the erection of buildings at Langdon Court Farm, for the Right Hon. the Earl of Guilford. Messrs. Fry & Miller, architects, Cannon-street, Dover:—

Hayward & Paramor	£799 6 6	Austen & Lewis	£759 0 0
Lewis & Sons	785 0 0	W. Bromley, Dover*	735 0 0
R. & G. Brisley	760 0 0		

[Architects' estimate, £750.]

EASTLEIGH (Hants). — For erecting new Bible Christian church for the Trustees. Mr. H. Haines, architect, West End, Southampton. Quantities by builder:—

R. H. Bundey £1,950
J. Nichol, Bitterne Park, Southampton* 1,772

HANLEY.—For 12,000 sq. syds. of tar pavement on walks and drives in Hanley Park, Staffs. Mr. J. Lobley, Borough Engineer, Town Hall, Hanley:—

John Edwards	£1,900 0 0	Josiah Smart	£1,245 16 8
Asphaltic Limestone Concrete Co., Ltd.	1,326 0 0	Asphaltes United	1,200 0 0
J. Wainwright & Co.	1,325 0 0	F. O. Sheppard	1,179 3 4
John Cooke	1,316 13 4	James Brook	1,175 0 0
W. H. & B. Stansbury	1,275 0 0	A. Kershaw	1,166 13 4
Daniel Boulton	1,266 13 4	Haigh & Co.	1,150 0 0
F. Mitchell & Son	1,258 6 8	La Brea Asphalte Co.	1,125 0 0
F. Barke	1,258 6 8	Wm. Sheppard, Rochdale*	1,100 0 0
Val de Travers Co.	1,258 6 8	N. of Eng. Asphalte Co., Manchester‡	1,075 0 0

‡ Slag; all the rest for limestone

HORNCASTLE (Lincs.).—For the supply of about 5,945 tons of granite and about 1,550 tons of slag for the Rural District Council:—

Granite.

	s. d.
Mountsorrel Granite Co., Mountsorrel, 6,000 tons	11 3

Slag.

Holwell Iron Co., Asfordby, 1,000 tons	6 9
W. S. White & Co., Lincoln, 550 tons	6 8

KEIGHLEY.—For the erection of a new Board School, Long Lee, for the School Board (U.D.). Mr. A. P. Harrison, architect, 18, Cooke-lane, Keighley:—

Mason: M. Sunderland, Mannville-rd, Keighley.
Joiner: R. Binns, Heber-street, Keighley ....
Plumbers: W. & J. Harrison, 23, South-street, Keighley .....
Slaters: W. Thornton & Son, Bromley-road, Bingley .....
Plasterers: H. Spurr & Son, Bingley .....
Painter: F. Petty, Laukholme-lane, Keighley..
Heating Engineer: Clapham Bros., Wellington Foundry, Keighley ..... } £2,280

KEIGHLEY.—For the erection of a Liberal club in Bradford-road, for the North-East Ward, Liberal Club Buildings Co., Ltd. Messrs. J. Haggas & Sons, architects, North-street, Keighley:—

Mason: E. Turner ....
Joiner: J. Wilkinson ..
Slater: W. Thornton ..
Plasterer: A. Sawley ..
Plumber: J. S. Harrison
Painter: R. Lonsdale .. } All of Keighley. £580 0 0

LEICESTER.—Extension of Machine Shop (steelwork only), for Messrs. Taylor & Hubbard, crane makers. Messrs. Tait & Herbert, architects, Leicester and Coventry:—

Whessoe Foundry Co.	£1,439 0 0
Gimson & Co., Ltd.	1,139 6 4
Edward Wood, Ltd.	1,100 0 0
Needham & Lowe, Leicester*	1,086 12 0

LEIGH-ON-SEA (Essex).—For making-up Hadleigh-road (part of), Fairleigh-drive, and Leigham Court-drive (part of), for the Urban District Council. Mr. W. J. Petch, Surveyor. Quantities by the Surveyor:—

Hadleigh-road.

G. Bell	£2,299 8 0	E. Lamble	£1,765 0 0
H. S. Higgins	2,027 15 5	Buxton & Jenner	1,751 0 0
J. Summerfield	1,987 19 6	W. Iles, South-end-on-Sea*	1,716 0 0
H. E. Johnson	1,921 6 5		
R. Ballard & Co.	1,895 0 0		

Fairleigh-drive.

J. J. Galer	£1,612 1 0	E. Lamble	£1,302 15 6
G. Bell	1,607 0 0	W. Iles, South-end-on-Sea*	1,248 10 0
R. Ballard & Co.	1,425 0 0	Buxton & Jenner	1,236 0 0
H. E. Johnson	1,404 4 2		
J. Summerfield	1,321 14 8		

Leigham Court-drive.

G. Bell	£482 15 0	J. Summerfield	£358 6 3
J. J. Galer	464 0 6	W. Iles	350 18 0
E. Lamble	429 18 4	Buxton & Jenner, Southend-on-Sea*	344 6 0
R. Ballard & Co.	422 0 0		
H. E. Johnson	388 17 10		

LOCHMADDY (Scotland).—For alterations to Public School and erection of teachers' dwelling-house, for the North Uiss School Board:—

D. Fletcher	£1,000 18 0	W. Bain, Lochmaddy, N.B.*	£800 0 0
D. M. Tavish	928 14 4		

LONDON.—For the erection of shelters in brick and half-timber work at the South Park, Fulham, for the Fulham Borough Council. Mr. F. Wood, A.M.Inst.C.E., Borough Engineer, Fulham:—

Spiers & Son	£644 0 0	T. Pearce	£550 0 0
Foster Bros.	628 0 0	T. Bendon	525 13 0
S. Dockerill	598 0 0	Surveyor's estimate	530 0 0
W. Norton	578 0 0		
H. Dakin & Co.	560 15 0		

[The Council has been recommended to carry out the work by the Borough Surveyor, at his estimate.]

LONDON.—For extension of electric light installation at Marshall-street Baths, for the Westminster City Council:—

Tamplin & Co.	£405 0 0	Taylor & Co.	£263 0 0
Rider & Co.	359 7 0	Bakewell & Co.	258 11 0
District Electric Co.	269 0 0	Bromley & Co.	236 3 0
Jackson Bros.	265 0 0	Potter & Sons	208 0 0

LONDON.—For new corridor to entrance lodge at Norwood Schools, for the Lambeth Guardians. Mr. S. R. J. Smith, architect, 15, York-buildings, Adelphi, W.C. Quantities by architect:—

		Time.
A. Acworth	£220 0 ..	3 months.
W. J. Coleman & Co.	169 13 ..	6 weeks.
Crabb & Son	195 0 ..	—
R. Goodman & Sons	225 10 ..	2½ months.
Hammond & Son	190 0 ..	3 months.
H. Kent	169 0 ..	5 weeks.
E. Mills	175 0 ..	2 months.
T. Pearce	192 0 ..	—
F. J. Wheeler	174 5 ..	1 month.
G. Jennings, Ltd., Lambeth Palace-road, S.E.*	130 0 ..	2 months.

LONDON.—For sole-plates for track-rails required in connexion with the London County Council's tramways north and south of the Thames:—

Bolckow, Vaughan, & Co., Ltd.* £3,497

LONDON.—For hydraulic penstock, Counter's-creek sewer, Lots-road Pumping Station, for the London County Council:—

Clark, Bunnett, & Co., Ltd.	£207 0 0
Glenfield & Kennedy, Ltd.	196 0 0
J. Blakeborough & Sons	187 8 0
Hunter & English*	165 0 0

LONDON.—For repairs to beams of main engines, Western Pumping Station, for the London County Council:—

James Simpson & Co., Ltd.	£900 0 0
Richard Moreland & Sons, Ltd.	613 0 0
Flavell & Churchill*	370 0 0

LONDON.—For the erection of new business premises in Drury-lane and Kean-street, W.C. Mr. H. Phelps Drew, architect, 33, King-street, Covent-garden. Quantities by Mr. J. Rookwood, 25, Bedford-row, W.C.:—

Turtle & Appleton	£7,680	Higgs & Hill	£7,194
T. L. Green	7,387	McCormick & Son	6,930
Patman & Fotheringham	7,273	Ashby & Horner*	6,904
		Hibberd Bros.	6,733

LONDON.—For the erection of a refreshment-room and kitchen at the Cricket Pavilion, Victoria Park, E., for the London County Council:—

W. D. Tucker	£481 17 5	S. Kind	£350 0 0
J. Jarvis & Sons	417 0 0	Cons & Smith	340 15 0
R. Woollaston & Co.	383 16 9	Foster Bros.	313 10 0
E. Jones	380 2 0	F. & T. Thorne	313 0 0
R. A. Dean & Co.	377 7 4	T. G. Sharpington	308 0 0
P. King & Co.	377 0 0	T. Pearce, Thornton Heath*	304 10 0
M. Calnan & Son	350 0 0		

LONDON.—For roads and sewers on section B of White Hart-lane Estate, Wood Green, for the London County Council:—

Martin, Wells, & Co., Ltd.	£8,327 0 0
A. B. Champness	8,294 12 11
W. Griffiths & Co., Ltd.	7,753 11 5
J. Macklin	7,616 12 2
T. Adams	7,386 14 4
J. & E. Bloomfield	6,955 0 0
Grounds & Newton	6,836 15 4
R. Ballard, Ltd.	6,657 0 0
F. J. Coxhead, 45, Bulwer-road, Leytonstone*	6,464 0 0

[Architect's estimate, £7,370.]

LONDON SCHOOL BOARD TENDERS.

Shap-street School, Kingsland-road: for Halls and other Improvements.

Boys' department: Providing new hall about 61 ft. by 25 ft. 4½ in.; new staircase, clock-room, lavatory, and teachers' rooms; redividing, restepping, and re-lighting existing classrooms. *Girls' department:* Providing new hall about 61 ft. by 25 ft. 4½ in.; new staircase, cloakroom, lavatory and teachers' rooms; re-stepping and relighting existing classrooms. *Infants' department:* Providing new hall about 61 ft. by 25 ft.; new cloakrooms and lavatory; restepping and re-lighting two classrooms; providing drawing classroom and science room, area 600 ft. each; providing new heating chamber and low-pressure hot-water apparatus; also new lift. Revised accommodation:—Boys', 312; girls', 337; infants', 384; total 1,033. Net loss of 32 places:—

G. S. S. Williams & Son	£12,890	J. Grover & Son	£12,650
Clarke & Brassey	12,888	F. & F. J. Wood	12,581
McCormick & Sons	12,862	C. Dearing & Son	12,559
A. Porter	12,850	E. Lawrance & Sons	12,459
W. Gregar & Son	12,819	Treasure & Son	12,201
W. M. Dabbs	12,724	C. Miskin & Sons	12,079
L. H. & R. Roberts	12,659	J. Chessum & Sons*	11,651

Wood-street School, Woolwich: for Improvements.

Re-dividing, re-lighting, and re-stepping existing classrooms in each department; forming new classroom for thirty-six out of existing halls for boys' and infants' departments; forming new corridor on second floor over hall in girls' department; forming new sixty classroom for each department. Heating by low-pressure hot-water apparatus. Revised accommodation:—Boys', 336; girls', 420; infants', 372; total, 1,128. Net loss of seventy-two places:—

G. E. Wallis & Sons	£4,122 0	W. Akers & Co.	3,600 0
T. L. Green	4,038 0	T. D. Leng	3,584 0
A. E. Symes	3,961 10	Rice & Son	3,548 0
Holliday & Greenwood, Ld.	3,812 0	J. Garrett & Son	3,519 0
Treasure & Son	3,808 0	E. P. Bulled & Co.	3,469 0
Thomas & Edge	3,789 0	Edwards & Medway	3,432 0
J. Appleby & Sons	3,722 0	W. Harris*	3,323 0

Plassy-road Site, Catford: for Special School for Sixty Mentally Defective Children.

J. & C. Bowyer* £3,487

Telferscot-road Site, Balham: for the Erection of Mentally Defective School for Older Boys.

Messrs. W. Johnson & Co., Ltd. (the Contractors who are now erecting a new school on the Telferscot-road site, Balham), recommended for acceptance; upon the understanding that the cost of the work, which is estimated at £2,807, shall be calculated upon the Contractors' Schedule of Prices for the new school.

Sussex-road Site, Brixton: for Third Class-room in connexion with the Special School.

Messrs. W. J. Mitchell & Son to provide the additional classroom upon the understanding that the cost of the work, which is estimated at £360, shall be calculated as a variation on their contract for the Special School.

Devons-road (New School): Bromley, for Heating Apparatus.

Stevens & Sons	£900	J. Wortner-Smith, Gray & Co.	£706 15
J. & F. May	760	J. Fraser & Son	689 0
W. G. Cannon & Sons	755	Werner, Pfleiderer & Perkins, Ltd.*	665 0
J. Yetton & Co.	735		
J. Richmond & Co., Ld.	720		

"Ben Johnson" School, Stepney: for Altering Windows and Improving Ventilation of all Departments.

G. S. S. Williams & Son	£1,285	J. Haydon & Sons	£1,170 0
F. & F. J. Wood	1,201	A. J. Sheffield	1,150 0
G. Barker	1,187	Parrott & Isom	1,133 0
J. T. Robey	1,183	Vigor & Co.	1,076 10
Stevens Bros.*	£996 (reduced to £858.)		

Kender-street School, Hatcham: for Works to Boys' Offices.

W. Downs	£400	H. Groves	£310
G. Kemp	394	J. W. Falkner & Sons	297
Maxwell Bros., Ltd.	392	H. Leney & Son*	245
J. & C. Bowyer	385		
G. Parker	370		

Running Contract for Framing and Mounting Drainage Plans.

	A: For framing complete, including glass, etc. per ft. super. s. d.	B: For mounting tracings (double elephant size). per ft. super. s. d.	C: For mounting, etc., tracing, (larger than double elephant size) per ft. super. s. d.
Muller & Co.	1 6	0 6	0 9
Norton & Gregory Ltd.*	0 11	0 3	0 4
Wolffe & Co.‡	0 10	0 3	0 4½
A. Woodgate	1 0	0 2½	0 4½
Present Prices	0 10	0 2	0 3

[Existing Contract will expire February 26, 1904.]
‡ This firm state that they will not be responsible for any tracings damaged during mounting.

Running Contract for the supply of Clips for Map and Stock Cupboards.

	per doz. s. d.		per doz. s. d.
F. Bird & Co.	6 0	Pryke & Palmer	3 9
J. Frankling & Son	6 0	Carter & Aynsley, Ltd.*	2 6
G. W. Seymour	4 6		
H. & C. Davis & Co., Ltd.	4 0		

Cleaning and Painting (List 1).

The interior work at the following schools will be executed between March 12, 1904, and April 9, 1904; and the exterior painting between March 12 and April 16, 1904:—

Waterloo-street, Painting Interior (Old Portion), Cleaning Interior (New Portion), and Painting Exterior (all Buildings).

W. Hornett	£717 0	W. R. & A. Hide	£568 15
C. F. Kearley	657 0	F. Chidley & Co.	504 0
Macey & Sons, Ltd.	632 0	W. Browne & Sons*	420 9
S. Polden	615 0		
J. & M. Patrick	570 0		

Edward-street, Cleaning and Painting Interior.‡

W. Hayter & Son	£280 0	T. D. Leng	£196 0
W. J. Howie	259 0	H. Groves	171 0
C. G. Jones	226 0	S. E. Musgrove*	128 2

‡ In this case the work will be executed between March 19 and April 9, 1904.

Larkhall-lane, Cleaning Interior.

Martin, Wells, & Co., Ltd.	£190 0	E. B. Tucker	£126 0
Rice & Son	145 0	Hudson Bros.	125 10
E. Triggs	131 0	Maxwell Bros., Ltd.	114 0
		J. Garrett & Son*	97 0

Riley-street, Painting Interior and Exterior.

J. Greenwood, Ld.	£481 0	E. P. Bulled & Co.	£443 10
Vigor & Co.	454 0	W. Sayer & Son	423 0
Bargman, Son & Co.	448 0	H. J. Williams	398 0
		E. Proctor & Son*	325 0

Fairfield-road, Painting Interior.

W. Silk & Son	£250 0	J. Haydon & Sons	£221 15
Vigor & Co.	245 0	R. Woollaston & Co.	182 10
A. E. Symes	242 0	J. F. Holliday*	175 15
J. Dolman & Co.	227 0		
A. J. Sheffield	226 10		

NANTWICH. — For cast-iron water-pipes, etc., Chorlton Hough, etc., for the Rural District Council. Mr. J. A. Davenport, C.E., 152, Hospital-street, Nantwich. Quantities by engineer:—

For Cast-iron Pipes.

Clay Cross Co., Clay Cross, near Chesterfield* £638 12 5

For Hydrants, Sluice Valves, etc.

J. Blakeboro' & Son, Brighouse, Yorks.* .. £62 8 6

NANTWICH.—For excavating for, and laying, etc., cast-iron water-pipes, Chorlton Hough, etc., for the Rural District Council. Mr. J. A. Davenport, C.E., 152, Hospital-street, Nantwich. Quantities by engineer:—

J. A. Ewart	£554 15 6	Arthur Fletcher	£303 6 0
T. H. Simmons	542 15 3	Jno. Dodd	287 10 0
Binnie & Thompson	427 16 0	Jno. Peake & Son, Willaston*	263 10 0
F. Whitelocke	371 4 0		

NARBOROUGH (Leicestershire).—For the erection of a new Asylum for about 700 patients, together with entrance lodge, church, etc., etc., for the Committee of Visitors, Leicestershire and Rutland County Lunatic Asylum. Messrs. Everard & Pick, architects, Millstone-lane, Leicester:—

Jos. Howe & Co.	£239,483 0 0
R. Wilkins & Sons	232,780 0 0
John Shillitoe & Son	230,591 0 0
Pethick Brothers	229,944 0 0
Foster & Dicksee	229,944 0 0
J. E. Johnson & Son	226,990 0 0
Robt. Neill & Sons	222,200 0 0
Hy. Willcock & Co.	219,750 0 0
J. Chessum & Sons	218,350 0 0
McCormick & Sons	217,345 0 0
Haskard, Rudkin & Beck	216,455 0 0
Armitage & Hodgson	213,087 0 0
John Bowen & Sons	210,998 0 0
Hy. Herbert & Sons	209,975 0 0
S. F. Davidson	209,940 0 0
Wm. Maule & Co.	209,625 0 0
Harold Arnold & Son	207,613 0 0
W. Pattinson & Sons	203,816 0 0
Jas. Wright	201,471 0 0
Wm. Brown & Sons	196,900 0 0
J. Hodson & Son	196,557 0 0
John Dallow & Sons	196,550 0 0
Geo. Longden & Sons, Ltd.	195,926 12 3
O. Wright & Co.	193,911 3 2
Thos. Fish & Sons	192,537 0 0
J. Parnell & Son	184,233 0 0
Thos. Rowbotham	184,200 0 0
Wm. Moss & Sons, Ltd., 39, Baxter-gate, Loughborough*	179,909 0 0

TENDERS—*Continued on page 269*

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom required.	Premiums.	Designs to be delivered
Twenty-five Houses, Park Hill, Tredegar	Tredegar Ch'b'r of Trade Bldg. Club	.....	Mar. 7
Free Library, etc., and Town Hall, Victoria Park ..	Tipton U.D.C.	50*l.*, 20*l.*, 10*l.* (limited to Architects in district)	Mar. 31
Two Libraries, Selly Oak and Stirchley, respectively	King's Norton and Northfield U.D.C.	Premiums not stated (limited to Archs. in district and Birm'gh'm)	April 5
Branch Library, Northfield	do.	do.	do.

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Materials	Marylebone Borough Council	The Town Hall, St. Marylebone, W.	Mar. 7
Materials	Bridgend U.D.C.	M. Williams, Engineer, Council Offices, Bridgend, Glamorganshire	do.
Drainage Works	Hale U.D.C.	J. G. Whyatt, Clerk, Public Offices, Ashley-road, Hale, Cheshire ..	do.
Repairs and Repainting at Baths	Lewisham Borough Council	E. Wright, Town Hall, Catford, S.E.	do.
130 Rods of Railway Post and Rail Fence at Cemetery	do.	do.	do.
Scavenging, etc.	Handsworth U.D.C.	B. Powell, Surveyor, Council Offices, Woodhouse	do.
Making-up and Stormwater Drainage of Park-lane ..	do.	do.	do.
Repair of District Roads	Bradfield R.D.C.	J. Forrester, District Surveyor, Theale, near Reading	do.
Steam Fire Engine	Cheadle and Gatley U.D.C.	E. Sykes, Surveyor to Council, High-st., Cheadle, nr. Manchester	do.
Teacher's Residence at Roshine, Burtonport	.....	Mr. Pinkerton, Shipquay-street, Londonderry	do.
Three Small Streets in Selby-st. and Woodcock-st.	Hull Estates Co., Ltd.	Gelder & Kitchen, Architects, 76, Lowgate, Hull	do.
Workshop and Warehouse, Sun-street, Gateshead ..	H. Hall	J. M. Dingle, Architect, 3, Ocean-road, South Shields	do.
Two Cottage Homes at Shenley Fields	King's Norton Guardians	T. Jones, 12, Warwich-chambers, Corporation-street, Birmingham	do.
Alterations, etc., to Woodstock House	Dr. Lloyd	E. Foster, Architect, Bella Vista, Abergavenny	Mar. 8
Causewaying of Alloway-street and Beresford-terrace	Ayr Corporation	J. Young, Town Surveyor, Town-buildings, Ayr	do.
Stores, Dalton, near Rotherham	Masboro' Equit. Pioneers' Soc., Ltd.	H. L. Tacon, Architect, 11, Westgate, Rotherham	do.
Vicarage, Bedminster	Bootle Corporation	W. V. Gough, Architect, 24, Bridge-street, Bristol	do.
Improvement Works in Passage	Ilford U.D.C.	Borough Surveyor's Office, Bootle	do.
Stores (Electricity Department)	.....	Electrical Engineer, Electricity Works, Ley-street, Ilford	do.
Pair of Semi-Detached Houses, Stump Cross, Halifax	The Guardians	J. F. Walsh and G. Nicholas, Architects, Museum-chamb., Halifax	do.
Fire Appliances, Plymouth Workhouse	Walsall Corporation	Master of Workhouse, Plymouth	do.
Extension of Boiler House, Wolverhampton-street ..	Mrs. Bentley	A. Wyllie, Borough Elec. Engineer, Wolverhamton-st., Walsall ..	do.
Detached Residence in Cardigan-road, Bridlington ..	.....	J. Earnshaw, Architect, Carlton-house, Bridlington	do.
Villa at Abersoch	Glasgow Corporation	Mrs. Griffiths, Bryn Mor, Abersoch, Wales	do.
Painter Work, Fish Market Extension	Bromley Borough Council	A. B. M'Donald, City Engineer, City-chambers, Glasgow	do.
*Refuse Destructor Buildings	Salford Corporation	Borough Engineer, Bromley, Kent	do.
Materials	Birm'gh'm Pub. Works Committee	Borough Engineer's Office, Town Hall, Salford	Mar. 9
Alfred-street Stormwater Culvert	Chepping Wycombe Council	J. Price, City Engineer, Council House, Birmingham	do.
Pipes, etc.	Penge U.D.C.	T. J. Rushbrooke, Boro' Survey., 77, Easton-st., High Wycombe	do.
Annual Contracts	Brighouse Corporation	Surveyor, Town Hall, Anerley, S.E.	do.
Macadam	Leeds Corporation	S. S. Haywood, Borough Engineer, Brighouse	do.
Extension, etc., of Boiler House, Kirkstall-road Baths	Edinburgh Corporation	City Surveyor's Office, Leeds	do.
Reconstruct. of Two Tenem'ts, Queen's-pl., Greenside	Leith Harbour Commissioners	Borough Engineer, Police-chambers, Edinburgh	do.
Paint. Fish-house Stores, etc., at Newhaven Harbour	Wetherby R.D.C.	P. Whyte, Superintendent, Docks Offices, Leith	do.
Road Materials	Hackney Carriage Committ. of Corp.	Mr. Wiseman, Surveyor to the Council, Wetherby	do.
Two Cabmen's Shelters, Hull	Wellington (Salop) U.D.C.	J. H. Hirst, City Architect, Town Hall, Hull	do.
Pipes, Sluices, and Hydrants, and Laying same	Durham County Council	G. Riley, Surveyor, 45, Walker-street, Wellington, Salop	do.
Road Metal	do.	County Surveyor's Office, Shire Hall, Durham	do.
Cartage, etc., for Auckland & Chester Main Rd. Dist.	Hull Corporation	do.	do.
Greenhouse, etc., East Park, Holderness-road	Birmingham Corporation	J. H. Hirst, City Architect, Town Hall, Hull	do.
Stores, Gas Department	.....	G. H. Barber, City Gas Offices, Council House, Birmingham	Mar. 10
Mechanics' Institute, Lecture Hall, etc., Cambois ..	Manchester Electricity Committee ..	T. Tulip, Architect, Whinney-hill, Choppington	do.
High Voltage Fittings	Manchester Electricity Department.	F. E. Hughes, Electricity Department, Town Hall, Manchester ..	do.
5,000 yards of 1-in. Feeder Cable	Carlisle Corporation	do.	do.
Stores and Materials	Stalyb'dge & Dukinfield Jt. Sew. Bd.	H. C. Marks, City Engineer, 36, Fisher-street, Carlisle	do.
Regula. Ch'b'r on M'n Sewer, Br'dl'y Hurst, Dukinfield	Poole Town Council	J. P. Wilkinson, C.E., 301, Cathedral-street, Manchester	do.
Making-up Mentone & other Roads, Parkstone, Poole	do.	J. Elford, Borough Surveyor, Poole, Dorset	do.
Sewer in Mentone-road	do.	do.	do.
Making-up Woodside-road	Ealing Town Council	do.	do.
*Making-up Roads	M.B. of Hackney	Borough Engineer, Town Hall, Ealing, W.	do.
*Annual Contracts	Gas and Electric Committee	Borough Engineer, Town Hall, Hackney, S.E.	do.
Electrical Plant, Belfast	East Ham U.D.C.	V. A. H. M'Cowen, City Electrical Engineer, Belfast	Mar. 11
Supplies	.....	C. E. Wilson, Clerk, Town Hall, East Ham, E.	do.
Two Semi-Detached Cottages at Fairwater, nr. Cardiff	.....	W. Beddoe Rees, A.R.I.B.A., 37, St. Mary-street, Cardiff	do.
Altera. to Farm Steading, Blackhillock, Burgie Estate	.....	C. Doig, Architect, Elgin	do.
Cottages at Dandaleish	.....	J. Smith, Seafield Estates Offices, Rother, N.B.	do.
125 lin. yds. Dwarf W'll, etc. Lewish'm-pk. Dartm'h-rd	Smethwick Corporation	C. J. Fox Allin, Borough Surveyor, Town Hall, Smethwick	Mar. 12
732 lineal yards of Iron Fencing, Lewisham-park ..	do.	do.	do.
Lavatories at Public Buildings, Smethwick	do.	do.	do.
Materials	Coventry Works Committee	J. E. Swindlehurst, City Engineer, St. Mary's Hall, Coventry	do.
Electricity Works	Loughborough Corporation	C. H. Gadsby, Engineer, 20, Victoria-street, Westminster, S.W...	do.
Pipe Sewer, Bury New-road	Heywood Corporation	J. Ainsworth Settle, Borough Engineer, Heywood, Lancs.	do.
Stores	Gravesend Electricity Committee ..	C. F. McInnes, Electricity Engineer, Electricity Works, Gravesend	do.
Twenty-seven Dwelling Houses, Bedwas, Mon.	Trustees of Building	G. L. Watkins, Architect, Station-terrace, Caerphilly	do.
Slag	Stafford R.D.C.	W. Morgan, Clerk, 4, Martin-street, Stafford	do.
Trial Borehole at Pumping-Station at Tweedmouth .	Berwick-on-Tweed San. Authority .	R. Dickinson, Burgh Surveyor, Berwick-upon-Tweed	do.
Stores	Eccles Borough Council	C. W. Laskey, Town Hall, Eccles	do.
Materials and Stores	do.	G. W. Willis, Sewage Works, Eccles	do.
Main Road and Bridges, etc.	Okehampton R.D.C.	S. Hooper, District Surveyor, Biddicombe, Hatherleigh	do.
Improvement of Lane, Hannah-street	do.	Surveyor's Office, Pentre	do.
Conversion of Bank Buildings, Pentre, into Offices ..	do.	do.	do.
Electricity Works near Gas Works, Tiverton	Town Council	J. Siddalls, Borough Engineer, Town Hall, Tiverton	do.
Fifty-five Houses at Blackwood	Osborne Building Club No. 2	James & Morgan, Architects, Charles-street-chambers, Cardiff	do.
Street Sewers	Ardrossan Town Council	C. J. Shaw, Burgh Surveyor, Ardrossan	Mar. 14
400 Tons of Irish Square Setts	Belfast Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast	do.
Materials	Eastbourne Town Council	D. J. Bowe, Borough Surveyor, Town Hall, Eastbourne	do.
Carting, and for Tools and Oil	Lichfield R.D.C.	C. O. Rawstron, District Surveyor, Lichfield	do.
Granite	do.	do.	do.
Temporary Pavilion for National Eisteddfod at Rhyl	.....	Darbyshire & Smith, Architects, 17, Brazennose-street, Manchester	do.
Works and Supplies (Various Departments)	Edinburgh Corporation	Burgh Engineer, Police-chambers, Edinburgh	do.
Two Water-Tube Boilers, etc.	Aston Manor Corporation	T. J. Ballard, Electricity Works, Chester-street, Aston Manor	do.
Whinstone, Granite, and Gravel	Sculcoates R.D.C.	A. Greaves, Surveyor, Hessle	do.
Conveniences in Parks, etc.	Sheffield Corporation	C. F. Wike, City Surveyor, Town Hall, Sheffield	do.
Sewerage and Sewage Disposal Works	Shepley & Shelley Jt. Sewerage Board	T. A. Murray, C.E., Independent-buildings, Fargate, Sheffield	do.
Steam Turbine Generator	Stepney Borough Council	A. Wright, Electricity Engineer, 27, Osborn-st., Whitechapel, E.	do.
Boilers, etc.	do.	do.	do.
Whinstone, Limestone, Slag	Chester-le-Street R.D.C.	G. W. Ayton, Highway Surveyor's Office, Chester-le-Street	do.
Cartage of Materials	do.	do.	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Assembly Hall, Buncrana	.....	E. J. Toye, Architect, 20, St. James-street, Londonderry	Mar. 14
Converter House, Cable, Culverts, etc., North-road	Brighton Corporation	F. J. Tillstone, Town Clerk, Town Hall, Brighton	do.
Jobbing Repairs to Workhouse and Parochial Bdgs.	Liverpool Select Vestry	H. J. Hagger, Parish Offices, Brownlow-hill, Liverpool	do.
Intercepting Sewers, Whitewick	Renfrew County Council	W. R. Copland, C.E., 146, West Regent-street, Glasgow	do.
Street Works	Paisley Town Council	Burgh Surveyor, 13, Gilmour-street, Paisley	do.
*Making-up Causton-road (First Section)	Borough of Hornsey	Borough Engineer, Municipal Offices, Southwood-lane, Highgate, N.	do.
*Electricity Works	Brighton Boro' Council	Town Clerk, Town Hall, Brighton	do.
Materials	St. Helen's Corporation	G. J. C. Broom, Borough Engineer, Town Hall, St. Helen's	Mar. 15
Annual Contracts	Sutton Coldfield Corporation	W. A. H. Clarry, Borough Eng., Council House, Sutton Coldfield	do.
Pipe-Laying and Tank	New Mill U.D.C.	C. H. Marriott, Son, & Shaw, Engs., Church-st.-chams. Dewsbury	do.
Covered Br'k, etc., Reservoir, nr. L'gridge, Linlithgow	Bathgate District Committee	P. C. Hart, C.E., 134, St. Vincent-street, Glasgow	do.
Two Calorifiers at Baths and Washhouses, Laurie-grove	Deptford Borough Council	The Engineer at the Baths, Laurie-grove, New Cross	do.
Pavilion at Isolation Hospital, Mousehole	Southampton Corporation	J. A. Crowther, Borough Engineer, Municipal Offices, Southampton	do.
Materials and Jobbing Work	Ipswich Sanitary Authority	E. Buckham, Borough Surveyor, Town Hall, Ipswich	do.
Additions to Hotel, Burtonport	.....	E. J. Toye, Architect, 20, St. James-street, Londonderry	do.
*Making-up Roads	Tottenham U.D.C.	Council's Engineer, 712, High-road, Tottenham, N.	do.
*Making-up and Construction of Roads	Henley-on-Thames Corporation	R. Pratt, Town Hall, Henley-on-Thames	do.
*Sewerage Works	City of Westminster	Works Dept., Westminster City Hall, Charing-cross-road, W.C.	do.
Alternating Current Transformers	Wallasey U.D.C.	J. A. Crowther, Engineer, Seaview-road, Liscard	Mar. 16
Alterations, etc., Old Boar's Head Inn, Long-street	Middleton Corporation	W. Welburn, Borough Surveyor, Town Hall, Middleton, Lancs.	do.
Road Material and Cartage	Tutbury R.D.C.	H. S. Tebbitt, Surveyor, 320, Shobnall-street, Burton-on-Trent	do.
Road Material	Uckfield U.D.C.	F. Holman, Clerk, 86, High-street, Lewes	do.
Materials, etc.	Hampton U.D.C.	S. H. Chambers, Surveyor, Public Offices, Hampton, Middlesex	do.
Cemetery Chapel, Ho., etc., Shepley-rd., Hooley Hill	Andenshaw U.D.C.	T. George & Son, Architects, Stamford-street, Ashton-under-Lyne	do.
Roadways on Kennell Estate, near Bo'ness	.....	Mr. Macpherson, Architect, 7, Young-street, Edinburgh	do.
Blasting Works	Dis. Com. of Mid. 5Wd., Co. of Lanark	J. B. Ferguson, District Offices, Hamilton	do.
Building a Training Ship for 650	Metropolitan Asylums Board	T. D. Mann, Clerk, The Embankment, London, E.C.	Mar. 17
Additions to St. Nicholas' Church, Dundalk	.....	W. H. Byrne & Son, Architects, 20, Suffolk-street, Dublin	do.
Electric Supply Plant, etc., Derry Lunatic Asylum	Committee of Management	R. V. Macrory, Engineer, Strand, Londonderry	do.
Heating New Buildings at Gransha, Derry Asylum	do.	M. A. Robinson, C.E., Richmond-street, Londonderry	do.
Wrought-Iron Tubes and Lead and Compo Pipes	Rhondda U.D.C.	O. Thomas, Engr., Gas and Water Offices, Pentre, R.S.O., Glam.	do.
Stores	do.	do.	do.
Iron and Steel Lightship	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, Dublin	do.
*New Sorting Office, Finsbury Park	Commissioners of H.M. Works, etc.	J. Wager, H.M. Office of Works, Storey's-gate, S. W.	do.
*Tools and Stores	Burma Railway Company	A. G. Begbie, 76, Gresham House, Old Broad-street, E.C.	Mar. 18
Materials, etc.	Moss Side U.D.C.	D. Ainley, Council Offices, Moss Side, Manchester	do.
Warehouse, Station-road, Weston-super-Mare	Lalonde Bros. & Parham	H. Price & W. Jane, Architects, Waterloo-pl., Weston-super-Mare	do.
*Signal Station, etc., Alderney, Channel Islands	Admiralty	Director of Works Department, 21, Northumberland-avenue, W.C.	do.
*New Coastguard Buildings, Sea View	do.	do.	do.
Sewage Purification Works (Contract No. 3)	Harrogate Corporation	E. W. Dixon, Engineer, 5, Prospect-crescent, Harrogate	Mar. 19
Annual Contracts	Hoylake U.D.C.	T. Foster, Surveyor, District Council Offices, Hoylake	do.
Materials	Highways Committee, Burnley	C. H. Pickles, Borough Surveyor, Town Hall, Burnley	do.
Road, Duffryn Crawnon Valley	Road Committee	T. Rees, M.Inst.C.E., Corn Exchange-chambers, Newport, Mon.	do.
Road Materials	Rothwell U.D.C.	J. T. Pears, Surveyor, Council Offices, Rothwell, near Leeds	do.
House and Shop, etc., New Tredegar	.....	G. Kentshole, Architect, Station-road, Bargoed	do.
Carnegie Free Library	Portadown U.D.C.	W. Wilson, Town Clerk, Town Hall, Portadown	Mar. 21
Two Pavilions, West Heath Infectious Diseases Hos.	King's Norton & Northfield U.D.C.	A. W. Cross, Engineer, 23, Valentine-road, King's Heath	do.
Boiler, etc.	do.	do.	do.
B'kwater and other Wks., at Cape Clear, County Cork	Office of Public Works	H. Williams, Office of Public Works, Dublin	do.
Halifax-road Sewer	Todmorden Sanitary Committee	Borough Surveyor's Drawing Office, Market Ground, Todmorden	Mar. 22
Road Material	Mutford R.D.C.	S. Bloy, Surveyor's Office, Oulton Broad, Lowestoft	do.
Underground Lavatory for Women, Piccadilly	Manchester Corporation	City Surveyor, Town Hall, Manchester	Mar. 23
Underground Lavatory for Men, Piccadilly	do.	do.	do.
Grange Vale and Borough-road Sewer	Birkenhead Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead	do.
*Casual Wards at Workhouse, Victoria Park, N.E.	Bethnal Green Guardians	W. A. Finch, 76, Finsbury-pavement, E.C.	do.
Convent at Kilfinane, co. Limerick	Committee of St. Paul's Convent	B. E. F. Sheehy, Architect, 57, George-street, Limerick	Mar. 25
*New Coastguard Buildings, near Plymouth	Admiralty	Director of Works Department, 21, Northumberland-avenue. W.C.	do.
*Additions to Asylum at Garlands	Cumberland, etc., Joint Asy. Com.	C. W. Allan Hodgson, The Courts, Carlisle	Mar. 26
Refuse Destructor, Newbold-road, Rugby	Rugby U.D.C.	D. G. Macdonald, Engineer and Surveyor, Rugby	Mar. 28
Annual Contracts	Little Hulton U.D.C.	J. H. Heyes, Clerk, Council Offices, Little Hulton	do.
Sanitary Towers & Wards, Union Workh., Tranmere	Birkenhead Guardians	E. Kirby, F.R.I.B.A., 5, Cook-street, Liverpool	do.
Sewerage and Sewage Disposal Works, Bawtry	Doncaster R.D.C.	D. Balfour & Son, Engs., 3, St. Nicholas-bldgs., Newc'stle-on-Tyne	Mar. 30
*Sewerage and Sewage Disposal Works	Chailey R.D.C.	Powell & Co., Estate Offices, Lewes	Mar. 31
Materials (Stone)	Hemsworth R.D.C.	T. H. Richardson, Surveyor, Hemsworth, near Wakefield	No Date
Buildings, Senghenith	Industrial Co-operative Society	G. L. Watkins, Architect, Station-terrace, Caerphilly	do.
Pulling Down & Rebuild. White Ox Hotel, Blackwell	Dirs., Carlisle Old Brewery Co., Ltd.	J. F. H. Harriman, Architect, 26, Castle-street, Carlisle	do.
*Rebuilding Premises in Castle-street, Carlisle	.....	H. J. Martindale, Architect, Viaduct-chambers, Carlisle	do.
Pair of Houses, Faustin Hill Estate, Wetheral	.....	do.	do.
Fifteen Houses, Hoyland Common	.....	W. J. Taylor, Architect, 38, Bank-street, Sheffield	do.
Drill Hall, 36 ft. by 65 ft.	.....	Captain Holliday, Lunnclough Hall, Huddersfield	do.
Residence, Allerton	.....	F. Holland, Eng. & Arch., 11, Parkinson's-ch., Hustlerg., Bradford	do.
Boilers & Pipe Cover., Storthes Hall Asyl., Kirkburton	.....	J. Vickers Edwards, County Architect, Wakefield	do.
School, Wheatley-hill	Wingate School Board	J. Garry, F.R.I.B.A., 33, Grainger-street West, Newcastle-on-Tyne	do.
Warehouse, Wade-street, Leeds	.....	Messrs. Mosley, Rent Collectors, 6, Wormald-row, Leeds	do.
Three Houses, Mansfield-road	.....	R. Lambert, Mansfield-road, Oak-lane, Bradford	do.
Boarding-house and Shops, Jamestown, Inverkeithing	.....	T. M'Grath's, 63, Main-st., Lumphinnans, Cowdenheath, Fifeshire	do.
Buildings of the *Dundee Courier*	.....	Niven & Wigglesworth, Architects, 104, High Holborn, London	do.
*Founda. & Basem't, New Prudential-bdgs., Brighton	.....	Paul Waterhouse, 20, New Cavendish-street, W.	do.
Two 12 ft. Purifiers, with Valves	Royston Gas Co.	H. Ellison, Cleckheaton	do.

Those marked with an asterisk (*) are advertised in this Number. *Competitions.* *Contracts*, iv. vi. viii. x. *Public Appointments*, xviii.

TENDERS—*Continued from page 267.*

PRESTON.—For erecting a two-story transit shed at Albert Edward Dock, for the Corporation. Mr. James Barron, Engineer, Ribble Navigation Offices, Preston:—

Thos. Croft & Sons, Victoria-street, Preston £19,785

RATHDOWN (Ireland).—For the erection of cottages, for the Rathdown Rural District Council No. 1. Messrs. Doolin, Butler, & Donnelly, architects, Dawson-chambers, 12, Dawson-street, Dublin:—

Single Cottages.

District.	Masonry. No.	£ s.	Brickwork. £ s. d.	Concrete. £ s.
	1.	160 0	160 0 0	155 0
Stillorgan only	2.	187 0	—	—
Reilly's field only‡	3.	142 0	150 0 0	138 0
	4.	197 0		—
Rathmichael and Stillorgan	5.	180 0	180 0 0	160 0
	6.	Nil.		
Dundrum only	7.	166 0	170 0 0	—
	8.	Nil.		
	9.	Nil.		
All the Glencullen and single at Kiltiernan				
5 pairs, 2 singles§ ..	10.	143 0	150 14 6	142 0
	11.	Nil.		
	12.	165 0	191 10 0	165 0
Ballally	13.	Nil.		

‡ O'Carroll Bros., Main-street, Bray.*
§ J. P. Macken, 44, Mountjoy-square.*

Pairs of Cottages (semi-detached).

District.	Masonry. No.	£ s.	Brickwork. £ s.	Concrete. £ s.
	1.	350 0	350 0	340 0
McCann's field only ..	2.	364 0	—	—
Reilly's field only‡ ..	3.	260 0	270 0	246 0
	4.	380 0	—	—
Rathmichael and Stillorgan only§	5.	324 0	324 0	290 0
	6.	357 0	379 0	335 0
	7.	316 0	324 0	—
Glencullen¶	10.	268 0	274 0	271 10
	11.	375 15	400 15	361 10
Ballally only	13.	352 0	—	—

‡ O'Carroll Bros., Bray.*
§ Geo. Bower, Ballybrack.*
‖ Wm. McCabe, Sandford-road, Ranelagh.*
¶ Jos. Macken, Mountjoy-square, Dublin.*

Dundrum Cottages (two story) built in a range.

	Masonry. No.	£ s. d.	Brickwork. £ s. d.	Concrete. £ s. d.
	1.	1,210 0 0	1,200 0 0	1,180 0 0
J. Clarke, Upper Clanbrassel-st.*	2.	1,640 0 0	—	—
	6.	1,198 0 0	1,198 0 0	1,117 15 0
	5.	1,240 0 0	1,272 0 0	—
	8.	1,500 0 0	1,506 0 0	1,408 0 0
	9.	1,320 0 0	1,320 0 0	—
	11.	1,450 0 0	1,450 0 0	1,500 0 0
	12.	1,178 8 4	1,273 0 4	1,146 18 4

Repairs to Golden Ball Cottages.
O'Carroll Bros., Bray* ..... £68 per cottage.

REIGATE.—For revolving sprinklers, penstocks, valves, etc., for sewage-disposal works at Earlswood, for the Council:—

J. H. Dale	£2,770 10	F. Bird & Co. ..	2,514 9
Whittaker & Co., Ltd.	2,611 6	W. Weeks & Son, Ltd., Maidstone*	2,396 4
Willcocks & Son	2,576 0		

SALISBURY.—For erecting new dining-room, classrooms, and dormitories at the Hostel, Barnard's Cross, for the Committee of the Salisbury Diocesan Training College. Messrs. John Harding & Son, architects, 58, High-street, Salisbury:—

Harris Bros.	£2,968 15	Vincent & Folland*	£2,800 0
Wort & Way ..	2,875 0	P. Tryhorn & Son	2,795 0

[All of Salisbury.]

SHEFFIELD.—For a steel girder bridge with stone abutments and pier, over the River Don, at Weedon-street, Brightside, for the Improvement Committee, Sheffield. Mr. C. F. Wike, City Surveyor, Town Hall Sheffield:—

William Craig, 5, John Dalton-street, Manchester* £10,457 9 7

SHILDON.—For sewage disposal works, Shildon, Durham, for Shildon and East Thickley Urban District Council. Mr. C. Heslop, Surveyor, Council Offices, Shildon, Durham:—

J. Moore	£4,213	W. & J. Lant	£3,275
G. T. Manners	3,678	B. Firth & Co., Holgate-road, York*	3,044
A. Metcalf	3,466		

SOUTHAMPTON.—For additions to the offices at the Corporation Wharf, Chapel, for the Corporation. Mr. J. A. Crowther, Borough Engineer :—

H. Stevens & Co.	£340 0 0	F. Grace	£295 0 0
F. Osman	317 0 0	J. Nichol	280 0 0
T. H. Stiles	299 19 0	W. Jupe*	244 14 6
H. Lawrence	297 10 0		

[All of Southampton.]

STRADBROKE (Suffolk).—For the erection of a police station, for the East Suffolk County Council. Mr. H. Miller, County Surveyor, 16, Museum-street, Ipswich. Quantities by the architect :—

Linzell	£1,222	Plummer	£1,049
Skuffham	1,220	Bullen	1,039
Gladwell	1,174	Cubitt & Gotts	1,020
McKay	1,155	Chandler & Etheridge	984
Thurman	1,147	Butcher & Rumsey, Stradbroke*	970
Doe	1,100		
Boddy & Son	1,095		
Burgoyne	1,051		

SWINDON.—For various street works, for the Corporation. Mr. H. J. Hamp, Borough Surveyor, Town Hall, Swindon. Quantities by Borough Surveyor :—

Landsdown-road to Kent-road.

F. Street	£147 3 0	Free & Sons	100 17 9
W. B. Winchcombe	£106 16 6	Free Bros., Marlborough*	98 4 9

[Borough Surveyor's estimate, £96. 0s. 3d.]

Poulton-street to Back-road, from Poulton-street to Cricklade-road.

F. Street	£139 11 10	W. B. Winchcombe	£96 18 6
Free & Sons	120 2 10	G. Whitehead, Swindon*	77 17 6
Free Bros.	100 12 8		

[Borough Surveyor's estimate, £92. 1s. 7d.]

Poulton-street to Florence-street.

F. Street	£113 14 2	W. B. Winchcombe	£79 8 6
Free & Sons	107 3 9	G. Whitehead, Swindon*	64 12 3
Free Bros.	81 15 0		

[Borough Surveyor's estimate, £73. 3s. 4d.]

Poulton-street to Suffolk-street.

Free & Sons	£72 10 1	Free Bros.	£55 19 8
F. Street	72 6 8	G. Whitehead, Swindon*	45 13 6
W. B. Winchcombe	58 10 3		

[Borough Surveyor's estimate, £53. 7s. 6d.]

Suffolk-street to Florence-street.

Free & Sons	£74 9 6	Free Bros.	£57 6 0
F. Street	74 6 8	G. Whitehead, Swindon*	46 12 3
W. B. Winchcombe	59 14 9		

[Borough Surveyor's estimate, £54. 6s. 1d.]

Poulton-street to Handel-street.

Free & Sons	£81 15 9	Free Bros.	£62 6 0
F. Street	80 15 6	G. Whitehead, Swindon*	50 9 6
W. B. Winchcombe	64 16 9		

[Borough Surveyor's estimate, £59. 1s. 6d.]

Handel-street to Cricklade-road.

F. Street	£82 8 5	Free Bros.	£61 17 8
Free & Sons	81 4 7	G. Whitehead, Swindon*	49 8 4
W. B. Winchcombe	62 0 3		

Borough Surveyor's estimate, £57. 3s. 0d.]

Between Poulton-street and Florence-street.

F. Street	£76 16 6	W. B. Winchcombe	£54 6 6
Free & Sons	72 12 5	G. Whitehead, Swindon*	43 3 4
Free Bros.	57 1 4		

[Borough Surveyor's estimate, £52. 11s. 4d.]

SWINDON.—For the electric wiring of Euclid-street higher elementary school, for the Corporation. Mr. J. G. Griffin, electrical engineer, Electricity Works, Swindon :—

F. Webb & Sons, Leicester* £173 15 0

WARRINGTON.—For a cast-iron tank and small reservoir, Longford Depot, for the Sanitary Works Committee. Mr. James Deas, engineer :—

For Cast Iron Tank.

J. Melbourne, Ltd., Warrington* .. £419 17 4

For Small Reservoir.

H. Fairclough, Builder & Contractor, Warrington* £485 0 0

WALMER.—For the erection of dwelling house at Hawkshill, for Mr. F. W. Leith. Messrs. Fry & Miller, architects, Cannon-street, Dover :—

May & Davis	£729 0 0	G. H. Denne & Son	624 0 0
J. W. Sandcraft	655 0 0	A. W. Thompson	614 0 0
J. J. Wise	652 0 0	J. E. Turner, Walmer*	546 0 0
S. & R. Jefford	647 13 0		
T. T. Denne	643 0 0		
Hayward & Son	624 10 0		

[Architects' estimate, £620].

WALTON-ON-THE-NAZE.—For making-up, paving, and metalling Green-lanes, Suffolk-street, West-street, and lower section of The Parade, for the Urban District Council. Mr. H. W. Gladwell, Surveyor, High-street, Walton-on-the-Naze. Quantities by the Surveyor :—

E. West	£2,633 0 0	W. Adams	£2,381 14 7
Starkey	2,573 18 3	Fairweather	2,380 12 0
Potter	2,525 13 7	Harvey Bros.	2,316 2 9
Burgoyne	2,482 6 11	J.C.Trueman, Swanley*	2,112 0 0
Griffith & Co.	2,409 0 0		

[Surveyor's estimate, £2,271. 7s.]

WALTON-ON-THE-NAZE.—For the construction of a burr groyne, Sea Defence Works, The Parade, for the Urban District Council. Mr. H. W. Gladwell, District Surveyor, High-street, Walton-on-the-Naze. Quantities by the Surveyor :—

T. W. Pedrette	£697 0 0	E. West	£342 0 0
Burgoyne	607 2 6	T. Adams	329 0 0
Cox Sea Defence Co.	504 17 6	J. C. Trueman, Swanley, Kent*	279 0 0
J. Fairweather	375 12 0		

[Surveyor's estimate, £345.]

WEMBLEY.—For constructing about 90 lineal yards of 9 in. stoneware pipe sewer, Blind-lane, for the Urban District Council. Mr. C. R. W. Chapman, Surveyor, Public Offices, Wembley, N.W. :—

W. Barrick	£311 0 0	H. Haynes	£136 12 7
T. Free & Sons	282 3 4	Wm. Cox, jun.	130 7 8
Wm. Pavey	277 5 10	A. B. Champnis	119 17 2
George Bean	161 16 8		

WORKINGTON.—For erection of new class and cloak rooms, etc., to St. Michael's Schools, for the Education Committee of the Borough of Workington. Mr. A. H. Coyle, architect, 10, John-street, Adelphi, London, W.C. Quantities by architect :—

R. Douglas, Workington* (Parts I. and II) £1,402

[Tenders for portions of work were received from twenty others.]

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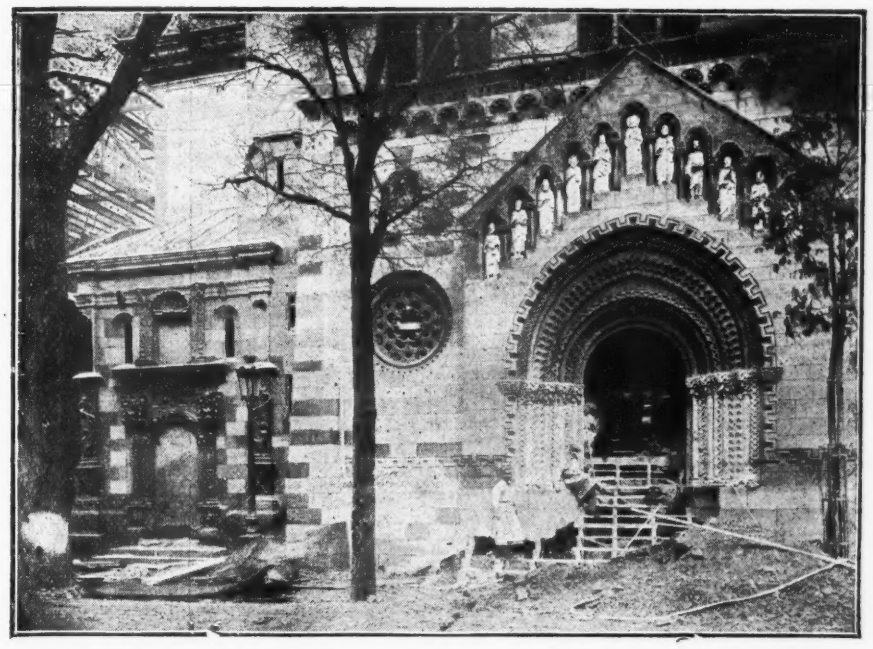

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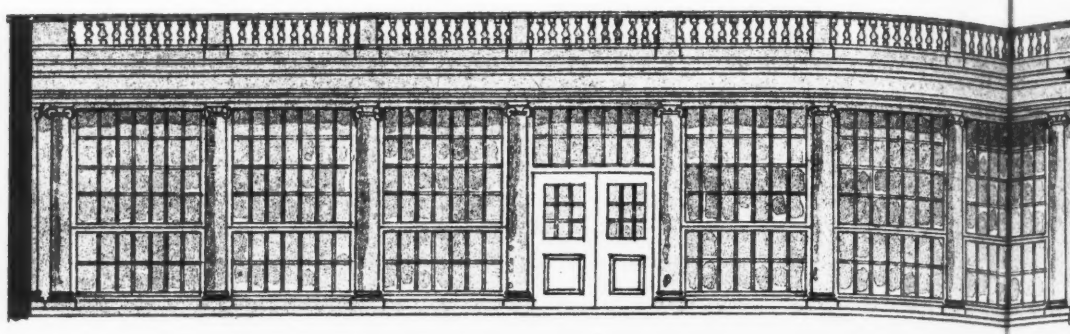

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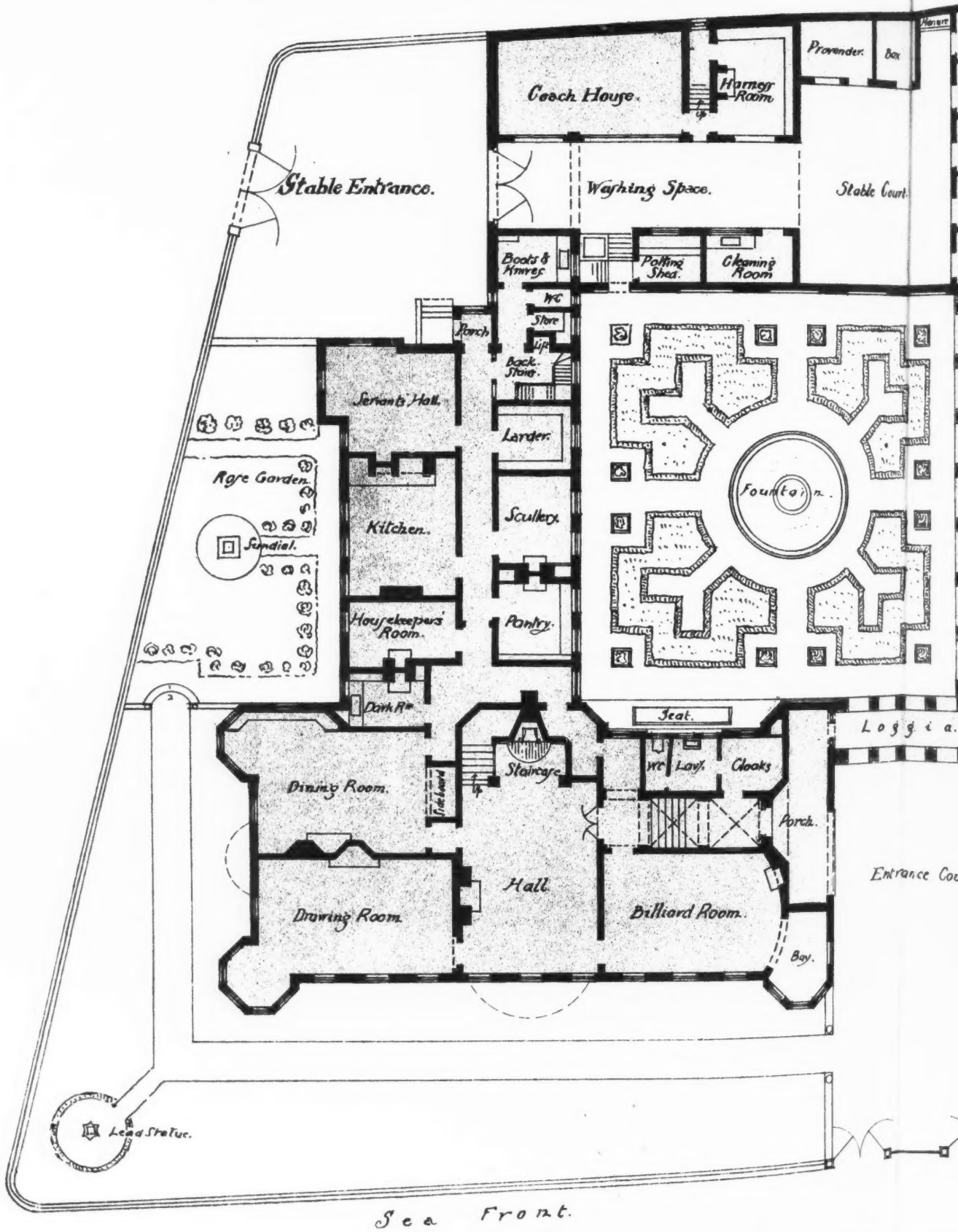

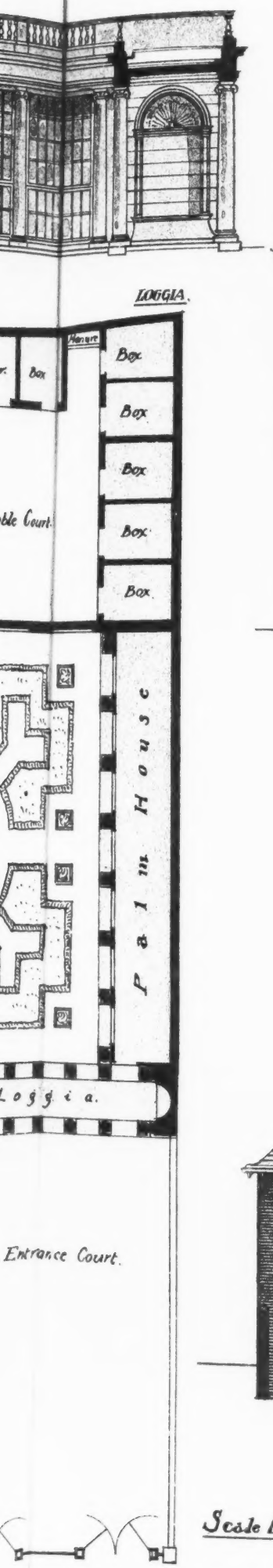

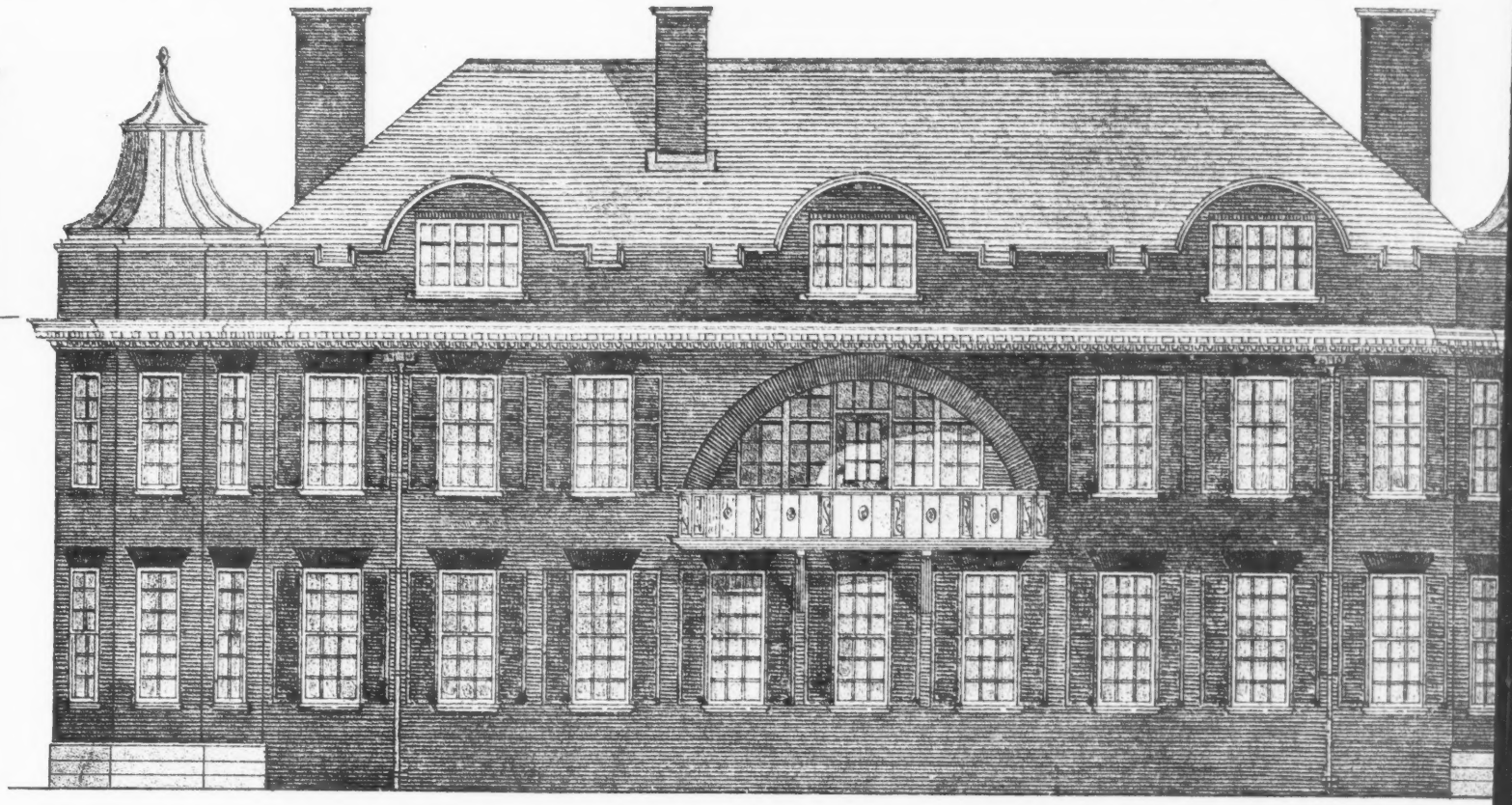

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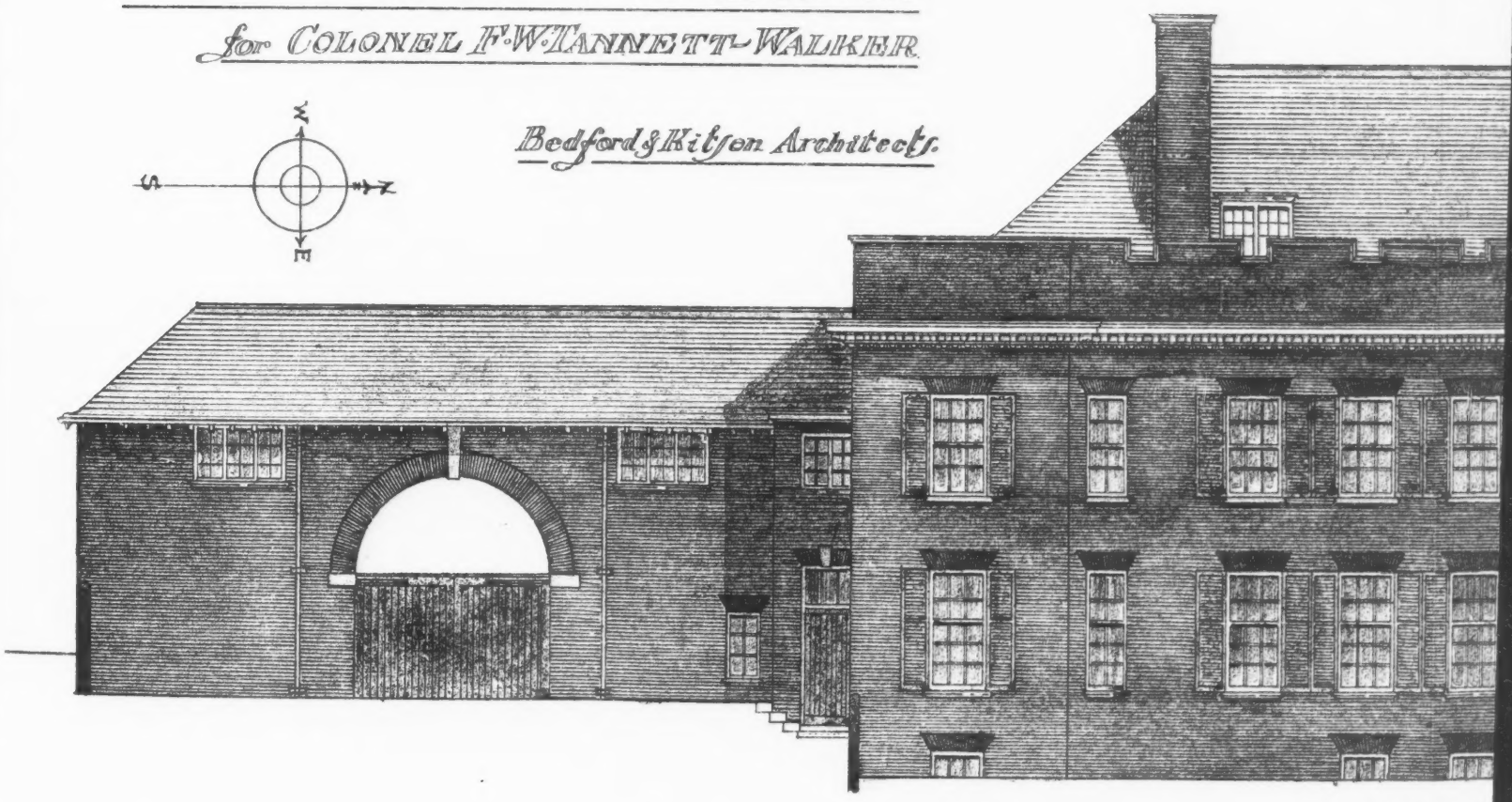

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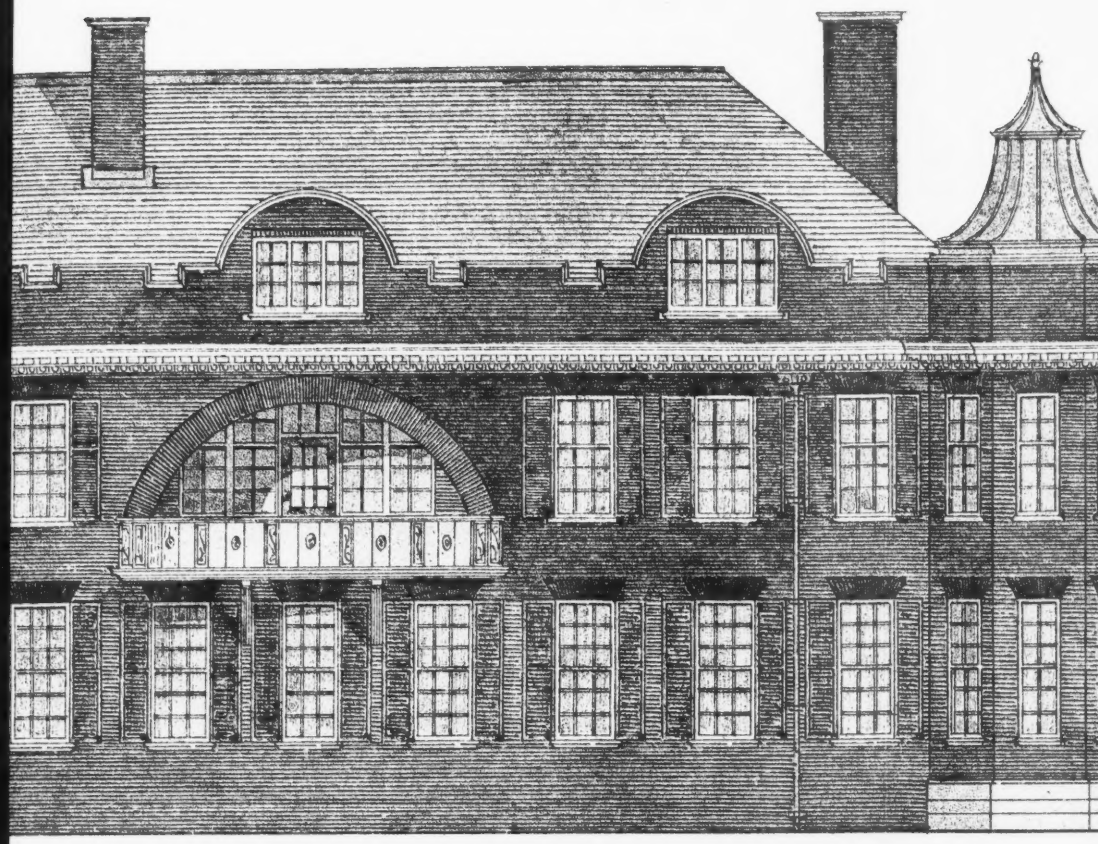

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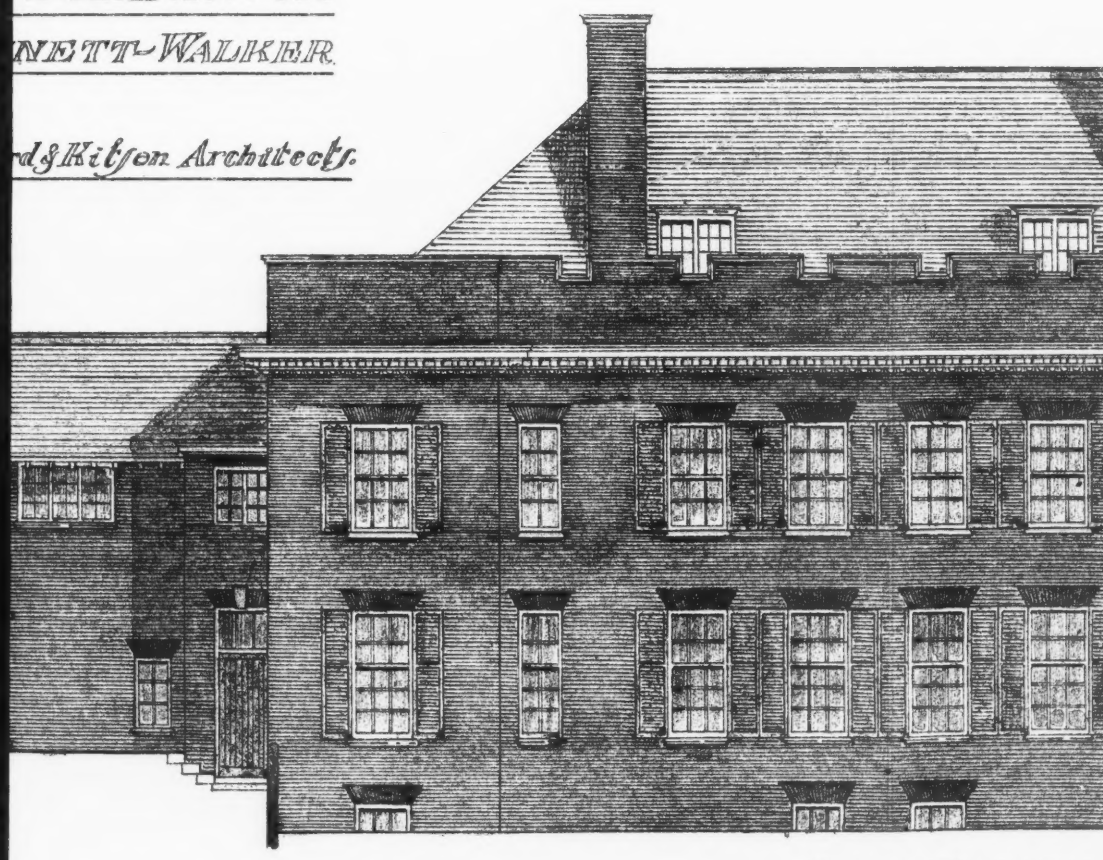

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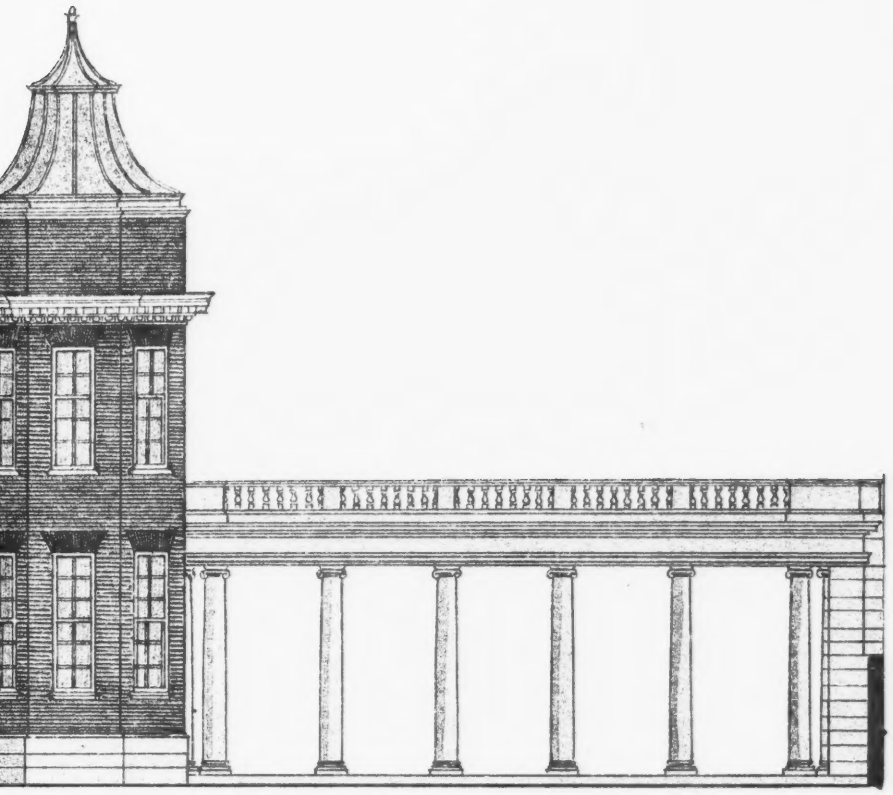

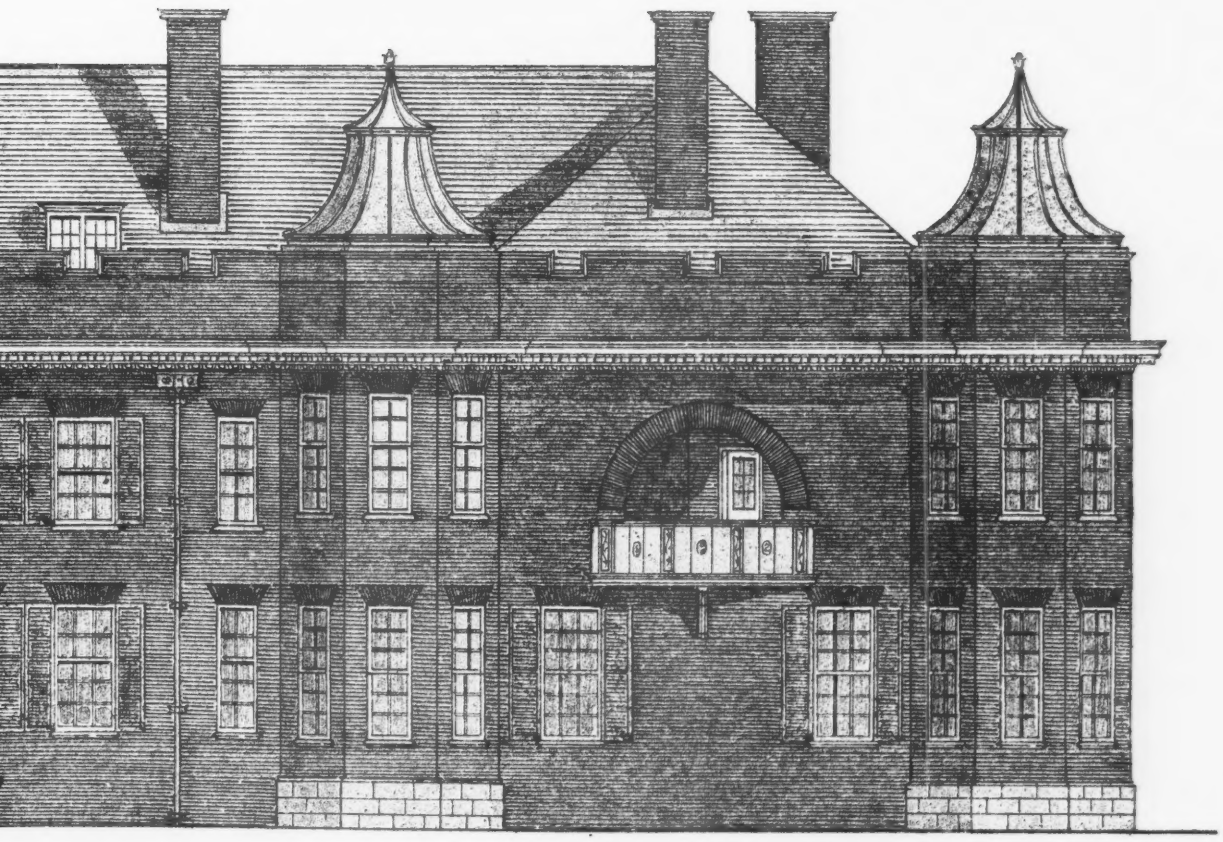

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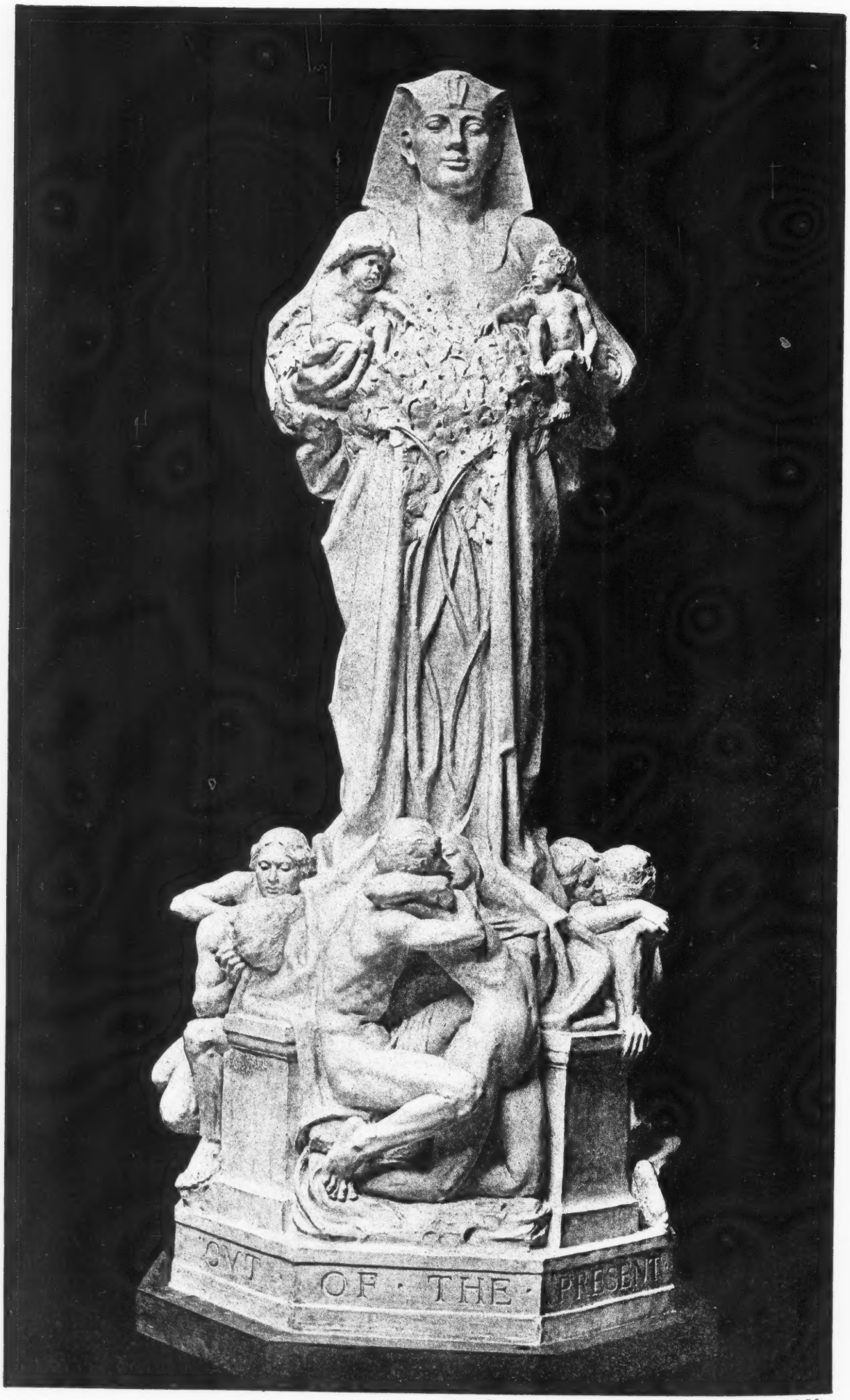

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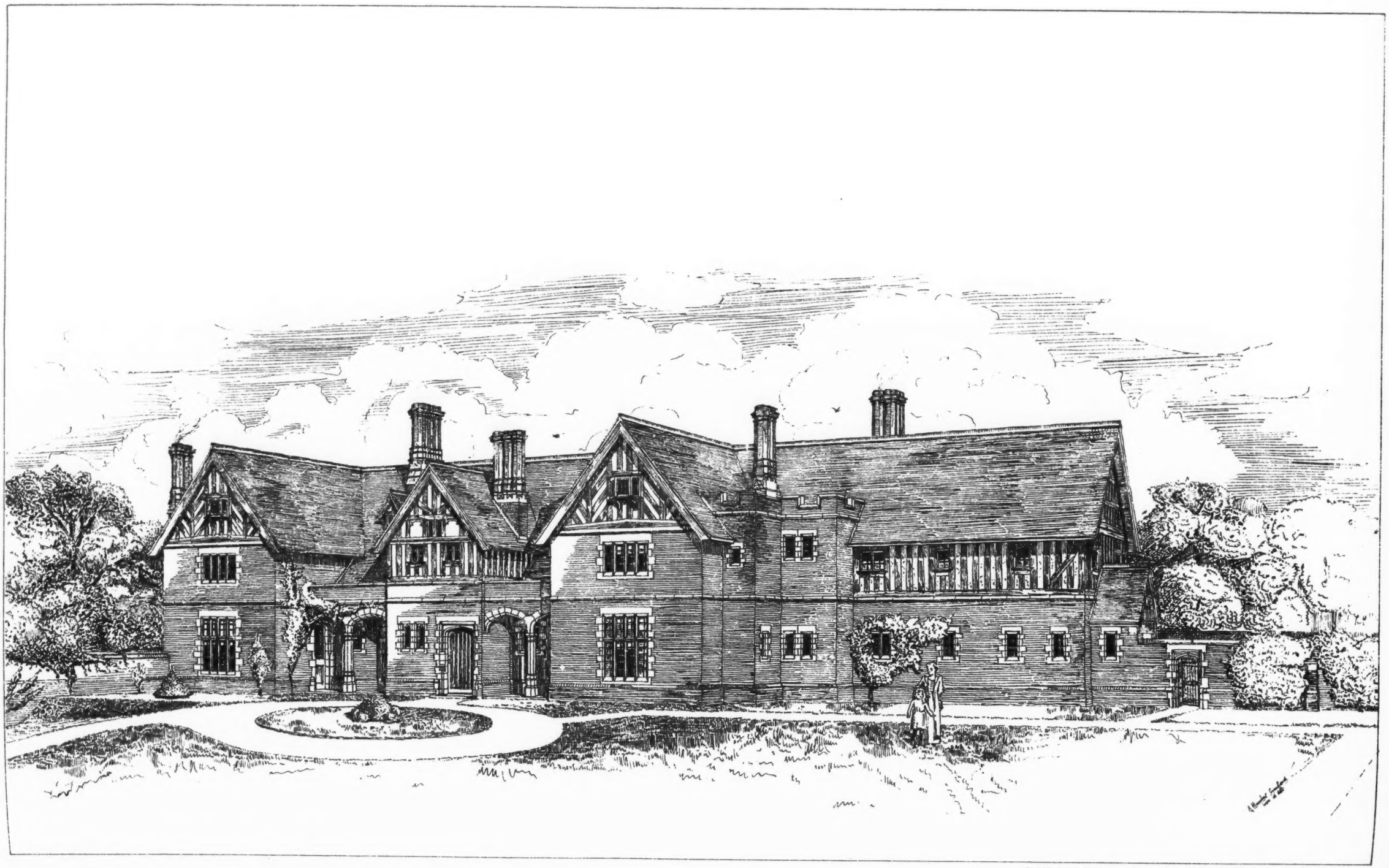

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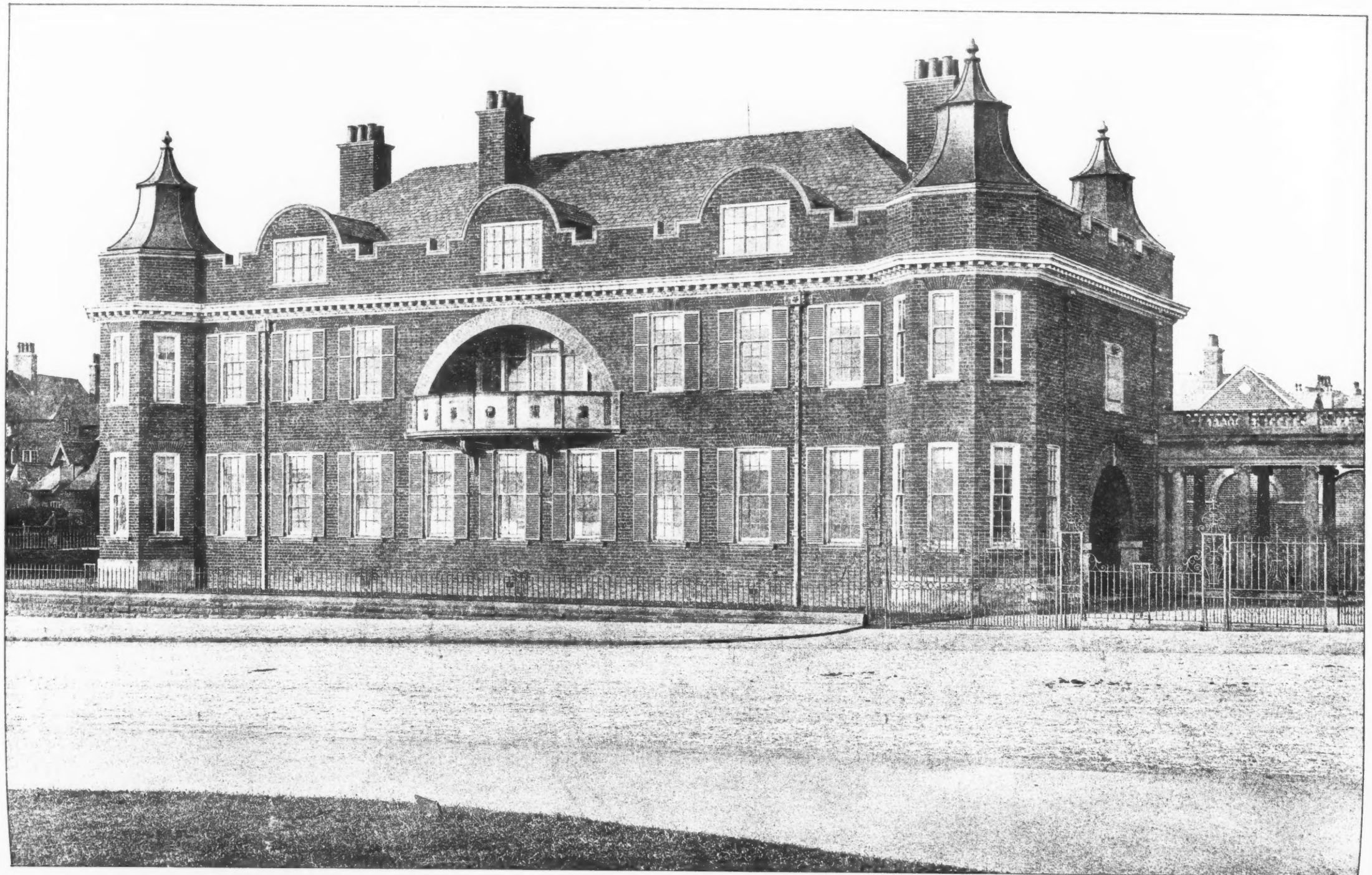

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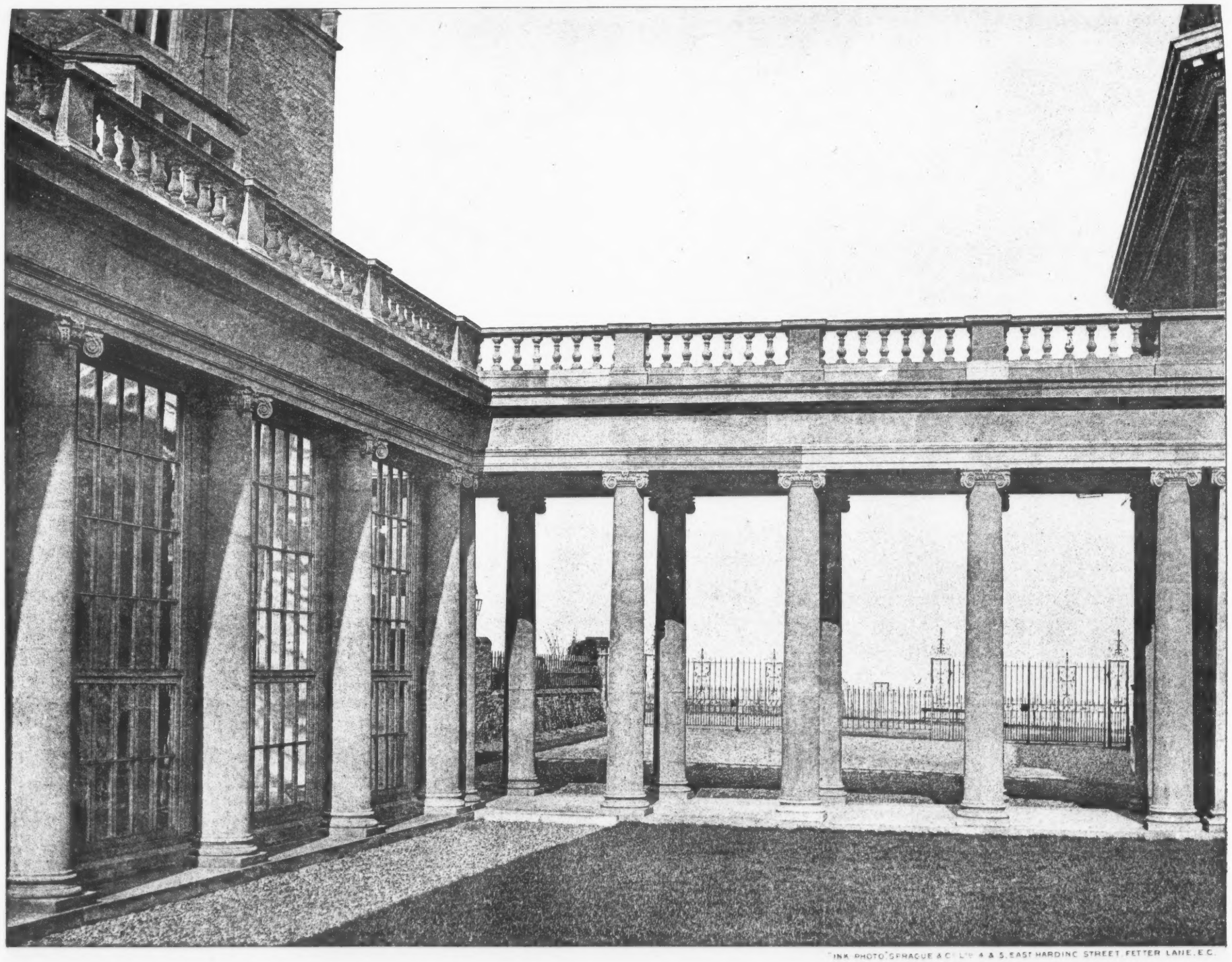

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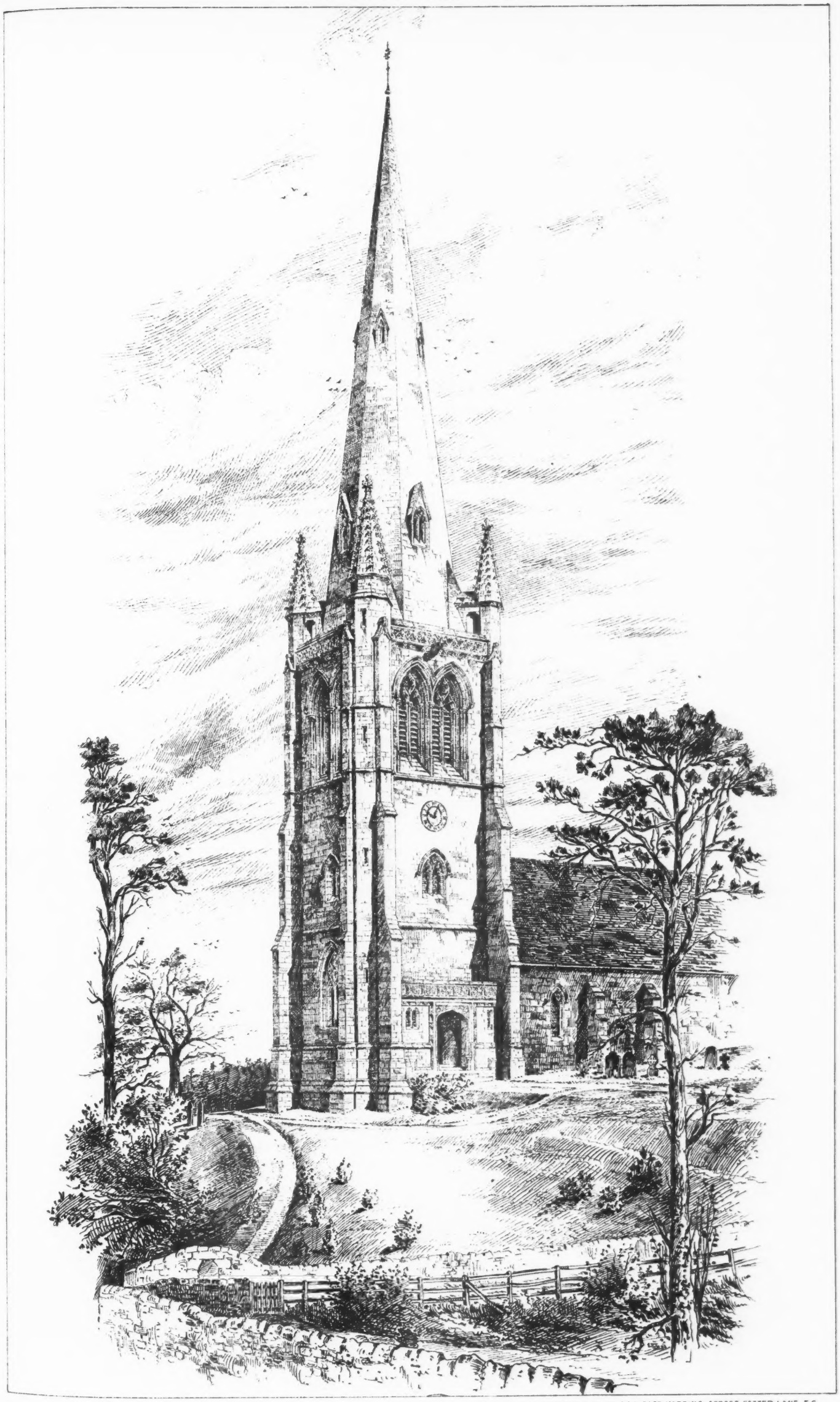

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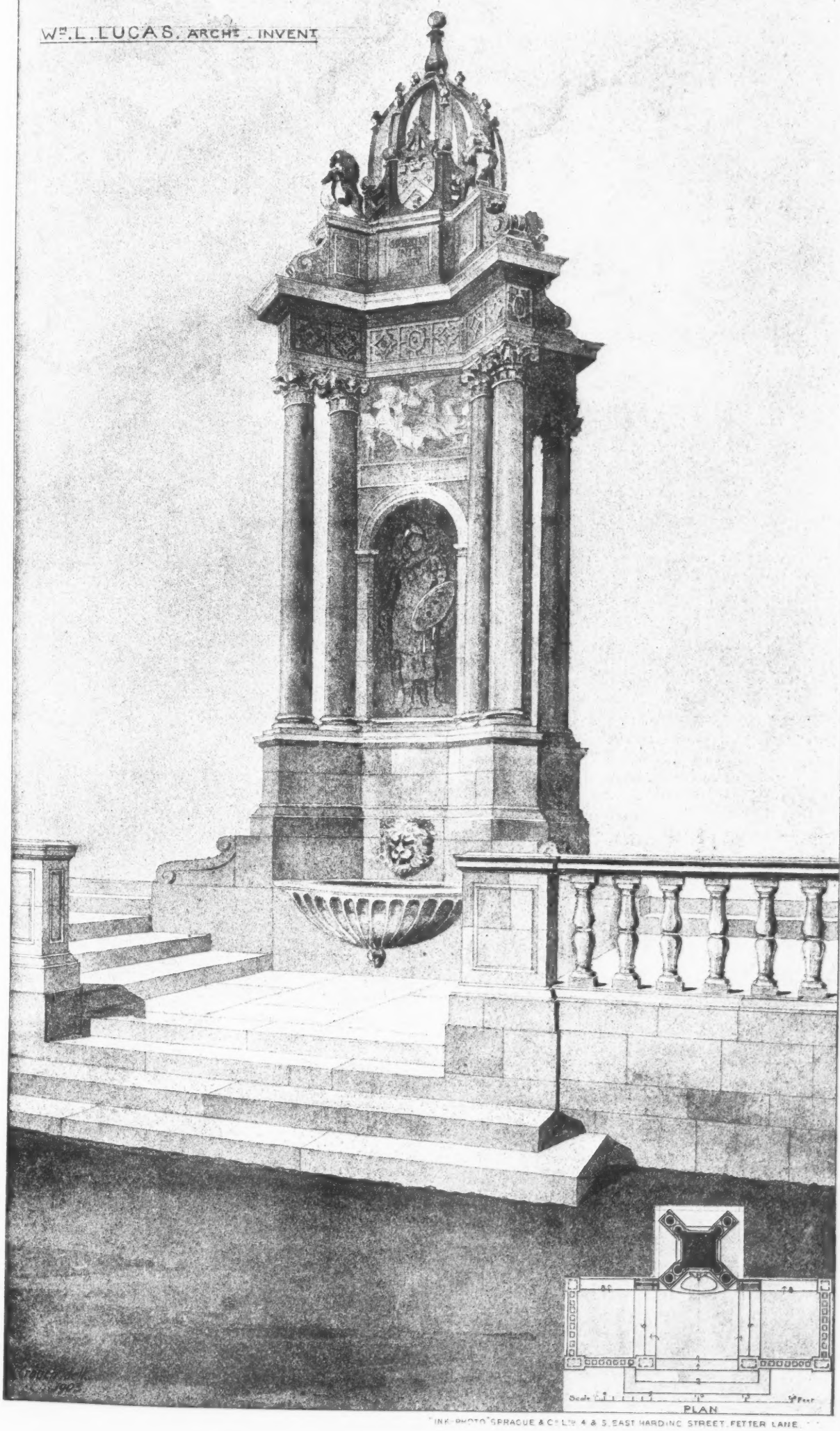

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